THE IRON AGE

Contents

AUGUST 4, 1938

Uniform High Quality . . . at No Extra Cost

The Ryerson Certified Steel Plan assures uniform high quality steels—at no extra cost. You have definite assurance of getting steel which has the features most desirable in the particular kind you order — whether it is a deep drawing quality sheet, high tensile structurals, easy machining screw stock or high finish stainless.

On alloy steels you get still another added feature. Ryerson sends accurate data on every bar delivered so that your heat treater can easily secure desired results — a service never before attempted by any steel-service company.

When you want good uniform steel, turn to the Ryerson Stock List. You will find a complete range of sizes and shapes. Immediate Shipment is assured.

RYERSON *Certified* **STEELS**

Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

Principal products in stock for Immediate Shipment include—Bars, Structurals, Plates, Iron and Steel Sheets, Tubing, Shafting, Strip Steel, Alloy Steels, Tool Steels, Stainless, Babbitt, Welding Rod, etc.

▲▲▲ THE IRON AGE ▲▲▲

AUGUST 4, 1938

ESTABLISHED 1855

Vol. 142, No. 5

Selling Below Cost

SELLING below cost is a bad business practice. It is roundly condemned by all reputable business men.

There are three reasons for selling below cost. The first is necessity; the second is ignorance, and the third is malicious intent.

Many concerns are now selling below cost through necessity. That always happens during a depression when demand is poor. Companies do not do this any longer than they have to, however, and in the meantime every possible economy is made to reduce the losses.

Some concerns, even in good times, sell below cost because of ignorance of the cost of their product. They do not know any better. Such action may be likened to involuntary manslaughter in that, while it may kill competition, it is done without that intent. It also generally results in suicide.

But some concerns sell below cost with malicious intent. They want to ruin their competitors or seize their businesses. This may be likened to murder in the first degree.

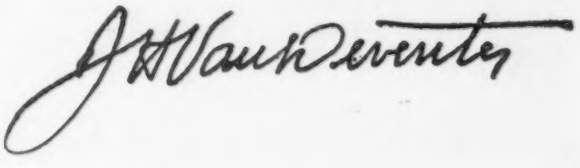
When a concern sells below cost through necessity, it should offset this through economy. When it is done through ignorance, the cure is through education. When it is done through malicious intent, more drastic action is called for.

By this time next year, our Federal public servants, whose job it is to manufacture government, will have sold their product continuously under its cost for six years. Twenty billions of dollars under cost. And there has been no perceptible effort to offset this with economies. This might be termed the "manslaughter" of the American taxpayer, which means the American public.

But that is not the worst of it. A government might be excused for selling its product below cost for a time in order to meet a national emergency, provided it also endeavored to reduce the loss through the exercise of economy. But when government also acts in a way which forces private business to sell below cost, that is business murder, pure and simple, and a forerunner of national economic suicide.

When government uses its power or tremendous influence to control wages and prices in private industry, it has the power to pronounce the death sentence upon private initiative and the opportunity to take over private business at bargain prices.

But how can government expect successfully to take over and to operate private business at a profit when it has established a continuous record of failure to sell its own product except at tremendous loss?



Lighting as an Aid to In

SAFETY in industry is too complex to be dealt with by any easy system of approach. It happens, however, that in most industrial jobs the employees have to be able to see what they are doing well in order to know what they are doing. This dictum is true even though we grant that much work today is routine motion. All of the known safety agents provided. With respect to lighting, good seeing conditions appear to be the exception rather than the rule and this condition probably results from a lack of understanding of the fundamentals of light and vision.

In providing lighting for safe seeing it is essential that the light be both adequate in quantity and of the proper quality.

HIGH quality lighting in the plant of the Lake Erie Steel & Blanking Co., Cleveland, has been responsible for a reduction in accidents.

When accidents occur they are usually attributed to some single cause, when, in reality, several causes may have contributed. If all of the factors normally associated with safety on a particular job have been considered, then only the chance carelessness of the workman would be the remaining hazard. However, how often are

Quantity of Light

The human eye is remarkably flexible and can make adjustments over a great range of lighting values. This versatility leads to confusion and bad guesses. A capable workman may produce, for a short time, the same quality of work under 5 footcandles that he regularly does under 20 footcandles. He might not complain if he had to put up with 5 footcandles regularly. However, it is a generally accepted fact that improved lighting increases efficiency. Fast workers with normal vision are enabled to produce more useful work when provided with good lighting, while slow workers and those with subnormal vision receive even greater assistance. In an interesting laboratory test conducted some time ago with two groups of workers, one with good eyes, the other with poor eyes, the first group increased their rate of working 14 per cent when the lighting was raised from 3 to 12 footcandles and those with poor eyes increased their rate of working by 22 per cent, indicating that light acts as a magnifier of details, makes seeing easier and therefore safer. The

* Mr. Warren is Secretary of the Light and Safety Committee of the Illuminating Engineering Society.

Industrial Safety

By DEAN M. WARREN*
General Electric Co.
Nela Park Engineering Department
Cleveland

quicker a workman can see danger, the quicker his response and the less likelihood of accident.

Quality of Lighting

The quality of lighting is concerned with the distribution of brightness in the field of vision and is highly important from the standpoint of safety.

Glare does not mean too much light. Glare conditions often exist where there is too little light. It always signifies a waste, not only of light, but of time and materials, since it interposes an obstacle to easy seeing. Worst of all it raises the possibility of accident—because with glare, seeing is subject to strain.

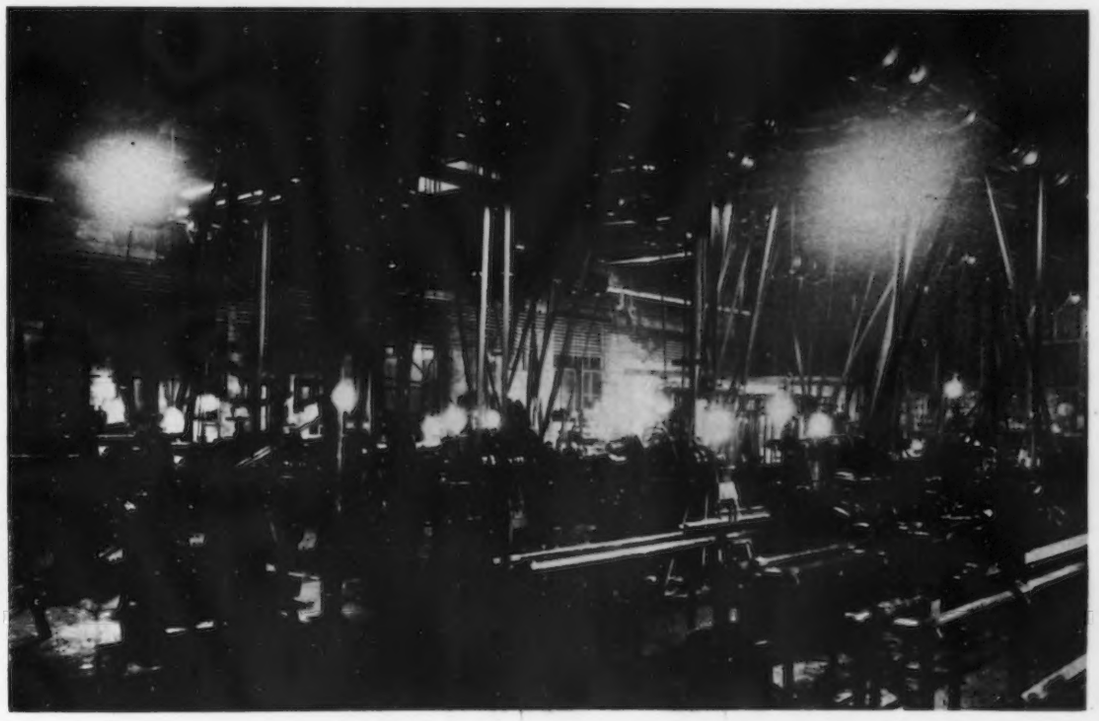
The cost of glare, measured by the waste of footcandles necessary to overcome reduced visibility due to glare, is shown in Fig. 4. At this machine a glaring local light has been used to supply a high level of illumination on the work. This glaring light causes the pupils to contract automatically, thus restricting the opening for "seeing" light to enter. From 40 to 80 per cent of the useful light is often wasted counteracting the effect of glare.

Similarly, reflected glare, that is, brightnesses reflected from shiny work surfaces, may prove even more annoying and interfere with vision to an even greater extent than direct glare. This calls for an intelligent analysis on the part of the lighting engineer, and dictates the choice of equipment and its location so as to insure both adequate diffusion and also proper direction of the light on the work.

Glare may result from: (1)—Lighting equipment which does not confine the light to the proper angles but directs an excessive amount to the eye; (2)—Units equipped with lamps that are too large for them; (3)—Luminaires with excessively high brightness at the angles reflected to the eye by shiny metal work or other specularly reflecting materials; (4)—Improper location or adjustment of equipment which permits bright reflections of the source to reach the eye.

One lighting fault which may be classed under the heading of poor distribution is the presence of dark, harsh shadows. These constitute definite accident hazards by obscuring objects that should be seen. They slow up work and are likely to cause errors in operation. Shadowy interiors hide dust and dirt, thereby making it difficult to keep a clean plant. Shadows may be caused by: (1)—Inadequate diffusion of the light; (2)—The wrong placement of light sources; (3)—Failure to insure a sufficient number of sources; (4)—The use of supplementary or local lighting with no general illumination.

Fig. 5 is a chart showing the parts of the body most frequently injured. It is natural to expect that hands and arms and feet would be more susceptible to injury than other parts of the body, and they are the parts most frequently injured. If we accept the fact that hand and foot movements become so routinized as to be almost automatic, we realize that responses to danger warnings must operate on



GLARE and shadows, twin enemies of safety, can be eliminated by a properly designed lighting installation.

HE correct way to use supplementary lighting. Glare and shadows are negligible and the worker has 100 footcandles of illumination to aid him in performing his seeing task.

a split-second basis. Our best hope of achieving such an automatic response is through ease of seeing. If the eyes have not been strained through use under difficult seeing conditions, then we have created a safety factor that can respond in almost instantaneous fashion.

Think of the men who work in factories today. They have hands and their skillfulness is one of the attributes of a craftsman. They have minds but unless of fair intelligence the employer would hesitate to have them in the plant, to put at their mercy the expensive machines and production under way—and they have eyes, but if impaired or subnormal they may cause workmen to have an accident, simply because they could not see what they were doing.

The interesting thing about these three points is that the betterment, maintenance and control of two of them, hands and mind, are largely the responsibility of the employee himself and the management can do very little about them. The other third of that craftsman's attributes, however, his seeing, is largely the responsibility of the employer. If the craftsman has poor eyesight, about the only thing he can do to better that eyesight is to go to an eye specialist and have his eyes equipped with lenses, to correct, so far as possible, that impaired vision, but beyond that his *seeing is largely a matter of plant conditions;* particularly the amount of light available, the placement of the lighting equipment, absence of glare, flickering shadows, and all of the other things that go to make a good or a poor lighting installation.

The best lighting systems today supply really meager light compared to daylight values. This is even more apparent when we compare 3 to 5 footcandles which are ordinary indoor values for industrial interiors, with 500 to 10,000 footcandles of outdoor daylight.

The eye will function and distinguish objects under a level of lighting of less than one footcandle. However, in order to offset the losses in visual efficiency caused by advancing years, it is necessary to provide more light than just enough for seeing. More light than just enough for seeing is likewise necessary for accident prevention. This can be done economically today because of the advancement that has been made in the field of electricity. Actually the lighting

SUPPLEMENTARY lighting should never be used without general illumination. Where this is done, contrasts are severe and shadows bad. Either may be the cause of an accident.

dollar now purchases 10 times as much light as it did 30 years ago and nearly twice as much as it did only ten years ago.

In planning a lighting system for safety as well as production, the aim is to provide a substantially uniform level of illumination throughout the working area. This eliminates spottiness in dark corners, and doesn't unfairly penalize any worker because of machine location.

The number of outlets to provide for any given area is determined by the maximum allowable spacing between units and is, in turn, regulated by their height above the floor. In general, a spacing in feet which does not substantially exceed the mounting height will result in reasonably uniform illumination.

Today general lighting is widely used throughout the industrial work world and is a satisfactory lighting solution for most factory operations. Not all, however, because researches in seeing indicate that some eye tasks performed in industry today require higher levels of illumination for quick, accurate seeing than can be economically provided by the general lighting system alone. Such lighting has to be tailored to the job. It is designated as general lighting plus or supplementary lighting and, as the name implies, consists of a general lighting system supplemented by local lighting over a restricted area.

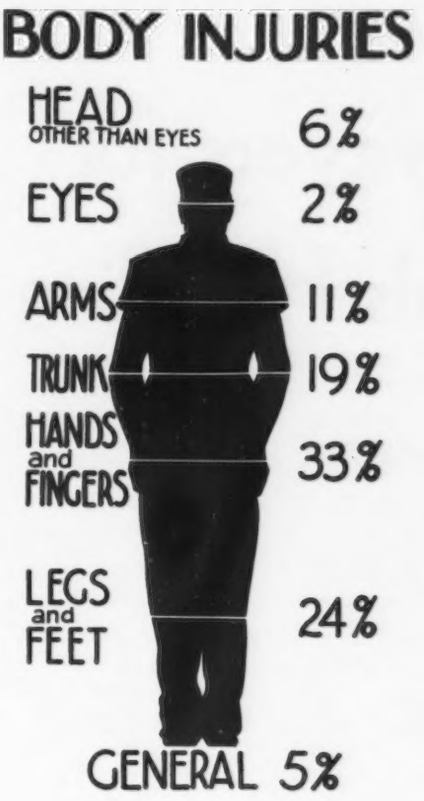


CHART showing percentages of injuries to various parts of the human body.

Source: Compensated industrial accidents 1931-1935 New York State Department of Labor.

Such lighting is not a return to the old pre-war practice of hanging a drop cord and a lamp wherever needed throughout the plant. Such a system provided considerable light on the work but left the room in comparative darkness. Present practice requires first of all that there be general lighting throughout the work area and supplementary lighting at those points where the seeing task is severe and in some instances prolonged. This "plus" lighting may be provided by equipment located at or near the ceiling or on the machine and so directed as to build up the level of illumination where desired.

Where such lighting is employed, care must always be taken to insure reduced contrasts between the point of work and the surrounding areas by providing a sufficient amount of general illumination. Experience has indicated that at least 10 footcandles of general lighting should be provided for every 100 footcandles of supplementary lighting.

Skill today is skill of seeing rapidly. Mistakes in seeing are costly in both material and men. Better lighting makes seeing easier and the working environment safer.

A.W.S. Publishes First Welding Handbook

DURING the past week the first edition of the Welding Handbook of the American Welding Society, 33 West Thirty-ninth Street, New York, was mailed to members. Copies are available to non-members at $6 in the United States and $6.50 elsewhere. This monumental work, covering over 1200 pages, and with 90 authors of the various chapters, was compiled by a committee headed by Dr. David S. Jacobus, consulting engineer of Babcock & Wilcox Co. In addition the book was reviewed in part by 237 authorities in their respective fields of welding.

The handbook is divided into three general parts, the first covering the fundamentals of the various processes; the second, the materials used and methods of testing welds; and the third, the applications thereof. The several forms of arc welding are first treated, then gas welding, resistance welding, thermit welding and oxygen cutting, as well as specialized processes. Under welding applications, chapters are devoted to the techniques employed in welding ships, pressure vessels, storage tanks, pipe lines, machine structures, buildings, aircraft and automotive products and railway equipment, to mention the more important classifications. There is also a critical digest of literature relating to welding research.

Doubling Lathe Output Theme of New Booklet

IN "Doubling Production Per Hour," a booklet patterned after its notable 50th anniversary publication entitled "What Makes Main Street," the R. K. LeBlond Machine Tool Co., Cincinnati, reviews in new form the features which qualify its Rapid Production lathes and their specialized accessories for high production operations.

Three classes of these heavy-duty lathes are featured, namely, the Nos. 1 and 2 high-speed, motor-head, four-way 11-in. lathes; the Nos. 3 and 4 six-speed, geared-head, four-way 11-in. lathes; and the 16-in. and 19-in. six-speed, geared-head, double-range lathes. The data on each are confined to a double-page spread which includes a full view illustration of the machine itself and a close-up showing an outstanding tooling set-up. Except for speeds, these page discussions are free from specifications, which are given complete on the back cover of the booklet.

Several pages are devoted to specialized tools, which by developing extra ease in handling and by providing automatic control of many operations, etc., are as important to rapid production as the lathes themselves. A double-page spread of line sketches of more than 30 tool set-ups, each credited with having "doubled production per hour," serves to carry the major theme of the booklet to the closing pages. Illustrations and text are in colored lithography.

Screw Conveyors for Bulk Materials Handling

o o o

By FRANCIS JURASCHEK

Consulting Editor, The Iron Age

o o o

Chapter 30 in a Series on the Economics of Industrial Materials Handling

o o o

IN the introductory pages of the Caldwell Conveyor Data Book these significant paragraphs appear:

"Two thousand years ago or more, Archimedes discovered the principle of the screw conveyor—the oldest and simplest form of bulk materials handling machines. The later refinements, and the broad, diversified applications of this comparatively simple conveying and elevating medium, have established the soundness of the screw principle, and practical ingenuity is employing it in many ways for handling commodities in bulk.

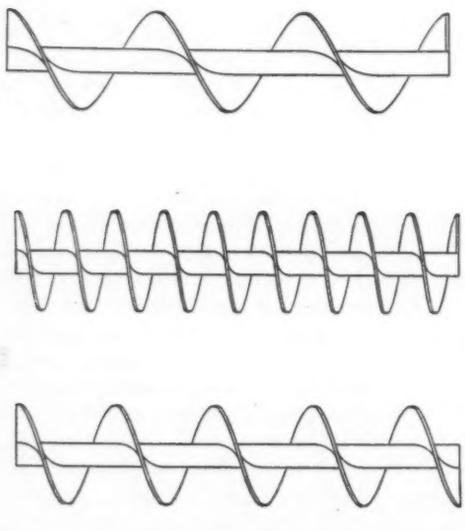
"Although many other types of materials handling equipment have since been introduced, screw conveyors continue to be widely used, probably in a greater variety of arrangements and to suit more unusual purposes than even before. Their low first cost, simplicity and economy of operation, and ease of installation, provide advantages which are not often found in other equipment used for the same conditions or layout."

It will be of interest to look closely at the bases for these rather broad claims. One of the unquestioned authorities on the design, construction and application of materials handling equipment is William W. Sayers, Chief Engineer of Link-Belt Company. In a paper devoted to a discussion of the methods of handling bulk materials, presented a few years ago to the Management, Materials and Maintenance Congress, Mr. Sayers wrote:

"The screw conveyor is used to excellent advantage in the conveying of such small-sized materials as grain, cement, cottonseed and its by-products, pulverized coal, sand, salt, starch, rice, sawdust, sugar, etc.

"Screw conveyors are low in first cost, being exceedingly simple in construction and requiring very little headroom. The conveyor consists of a spiral mounted on a central shaft or pipe, and serves to "screw" or push the material ahead in the all-steel, or steel-lined wooden trough in which the spiral is rotated by suitable driving mechanism, and from the top of which trough the ends of the 8-, 10-, or 12-ft. sections of standard conveyor are supported at intermediate points by means of hanger bearings.

"The diameter of the conveyor or spiral may be as small as three inches or as large as 24 inches. The material



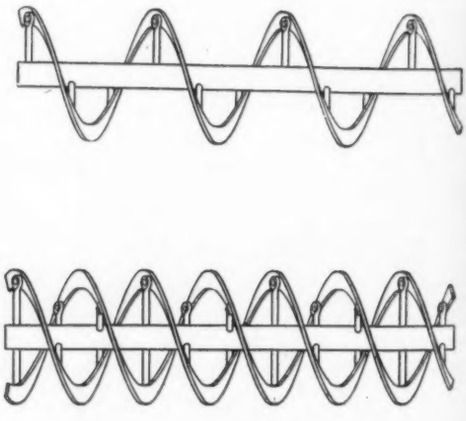
LEFT

FIG. 1—The screw conveyor of standard, long and short pitch, single flight. Courtesy of Link-Belt Co.

o o o

AT RIGHT

FIG. 2—The ribbon screw conveyor, single and double flight, for mixing and conveying. Courtesy of Link-Belt Co.



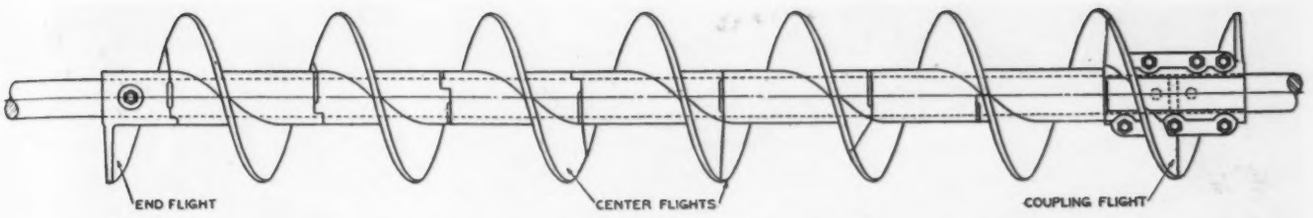


FIG. 3—Section of cast iron screw conveyor, as used for handling abrasive materials. Courtesy of Jeffrey Mfg. Co.

is discharged either over the end of the conveyor trough or through gates fitted in the trough's bottom where desired. Sometimes these are simply discharge holes with no gates, with the result that the coal, for example, discharges through the first opening until the height of the pile reaches and closes up the hole. Then the discharge will be through the next hole in the trough, and so on until the storage is full.

"Screw conveyors are used for moving materials horizontally or at slight inclines not exceeding about 10 degrees. As a rule their use is confined to the lighter classes of service; and when employed for conveying ashes or other abrasive materials tending to cause rapid wear, the screw and trough ought to be constructed of cast iron, manganese steel, or heat-treated steel.

"The screw conveyor is used quite often at sand- and gravel-washing plants as a dewatering device. The screw has a scrubbing action on the sand, and keeps the loam and other foreign matter in suspension, to be carried away in the overflow. Thus a clean and dry sand is secured for use where the specifications and inspection are rigid.

"The screw conveyor can often be placed in close quarters where other forms of conveyors could not work."

To Mr. Sayers' remarks should be added the fact that screw conveyors are likewise frequently used to *lift* materials vertically.

Capacity Classification	Percentage of Cross Section in Material (Average)	Description of Materials
 I	45%	Light, fine, non-abrasive and free-flowing materials weighing up to 30 or 40 pounds per cubic foot, like pulverized coal, air-separated hydrated lime, and flour.
 II	38%	Medium weight, non-abrasive, granular or small lump materials mixed with fines, weighing up to 40 or 50 pounds per cubic foot, like cereals, cottonseed, light soda ash, sawdust, etc.
 III	31%	Non-abrasive or semi-abrasive granular or small lump materials mixed with fines, weighing from 40 to 75 pounds per cubic foot, like bituminous coal or screenings, refined sugar, coarse salt, and dense soda ash.
 IV	25%	Semi-abrasive or abrasive materials, consisting of fines, granular or small lumps mixed with fines, weighing from 50 to 100 lbs. per cubic foot, such as cement, shale, gypsum, ground or pebble lime, etc.
 V	12½%	Highly abrasive, lumpy or stringy materials, which must be carried at a low level in the trough to avoid contact with hanger bearings or interference with hanger frames. This is a special classification including such materials as ashes, coke and flue dust.

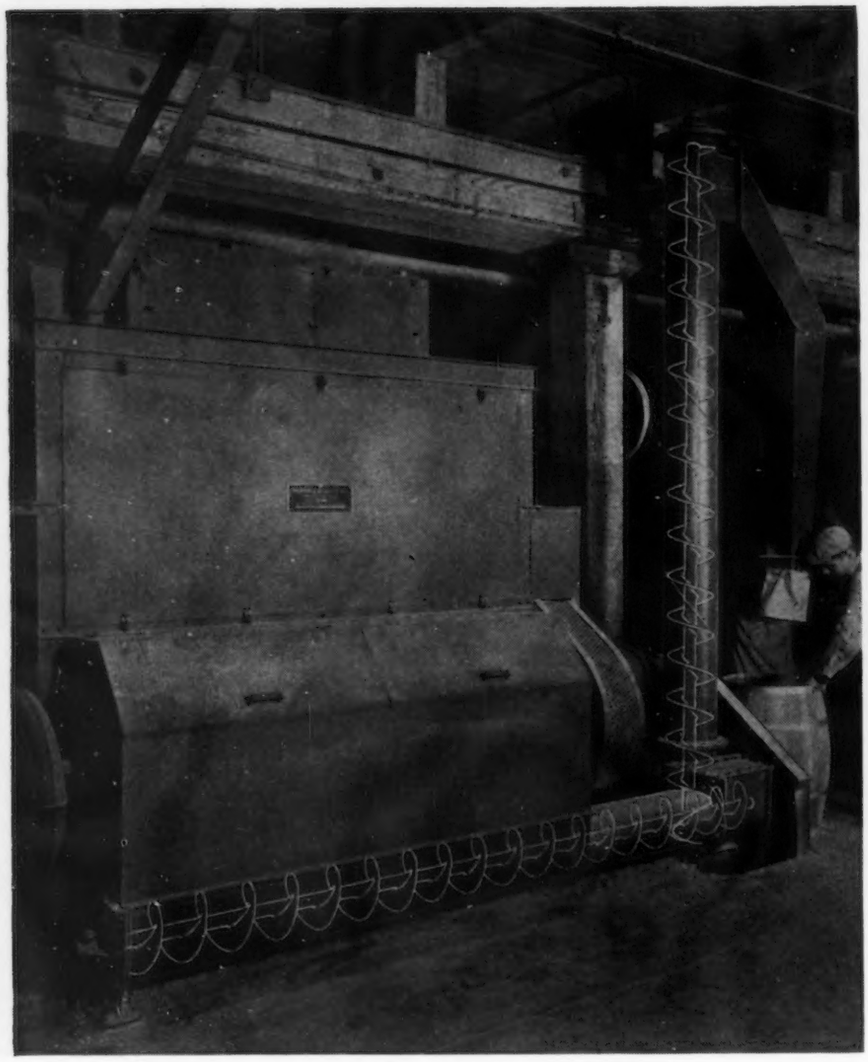
FIG. 4—Five typical loadings for horizontal screw conveyors, suitable for various materials. Courtesy of Link-Belt Co.

What Is a Screw Conveyor?

A screw conveyor consists essentially, as Mr. Sayers has mentioned, of a spiral mounted on a central shaft, rotating in a trough. The spiral, or screw-thread, is wide in comparison to the supporting shaft, and may be made of sheet metal fashioned to shape and fastened to the shaft, or of cast metal, in which case the spiral and shaft are usually made integral. For transferring material from one point to another only, the spiral is made solid, and fits the shaft closely, as shown in Fig. 1; but for mixing and transferring the spiral blade may be cut open, or may consist of a peripheral ribbon of metal supported by arms projecting radially from the shaft, as in Fig. 2. This latter type is especially useful for handling wet or sticky materials, or where clearance between the flight and the shaft is essential for purposes of washing, cleaning, etc. In the case of cast iron screws, as used for the handling of abrasive materials, the flights are made in sections, generally of one complete turn each, fastened together in a continuous series, as shown in Fig. 3.

Most screws are made in single pitch, that is, with one complete turn of the thread per revolution of the shaft; and in short pitch, standard pitch or long pitch models. Short pitch carries the turns spaced near each other, and is particularly adapted for vertical lifts, or for low-speed feeders. Long pitch carries the turns spaced far apart, and is used most frequently for vertical screw agitators for fluid materials, or for high-capacity conveying of very free-flowing materials. At times multiple pitch screws are advantageous (these have more than one turn of the screw-thread per revolution of the shaft) where exceptionally smooth flow and discharge of the material may be required, or where higher capacity output is desired in the handling of free-flowing materials.

The "hand" of a conveyor screw may be readily determined by looking at it from either end. If the spiral curves up around the shaft towards the left, it is left hand; if it curves up towards the right, it is right hand. Reversing the direction of rotation of a conveyor shaft changes the direction in which the material travels. Turning the spiral end for end in the trough does not change it from one



ABOVE

FIG. 5 — Horizontal and vertical screw conveyor equipment for handling soap chips from chip-making machine. Courtesy of Link-Belt Co.

o o o

AT RIGHT

FIG. 7—Heavy screw conveyor equipment for handling finely crushed limestone to storage bins at stone quarry. Courtesy of Jeffrey Mfg. Co.

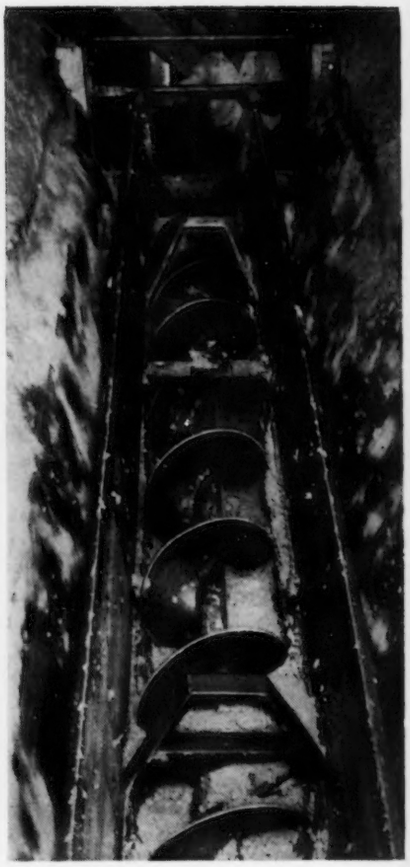


FIG. 6—20-inch diameter open trough screw conveyor for handling paper pulp in a large paper mill. Courtesy of Link-Belt Co.

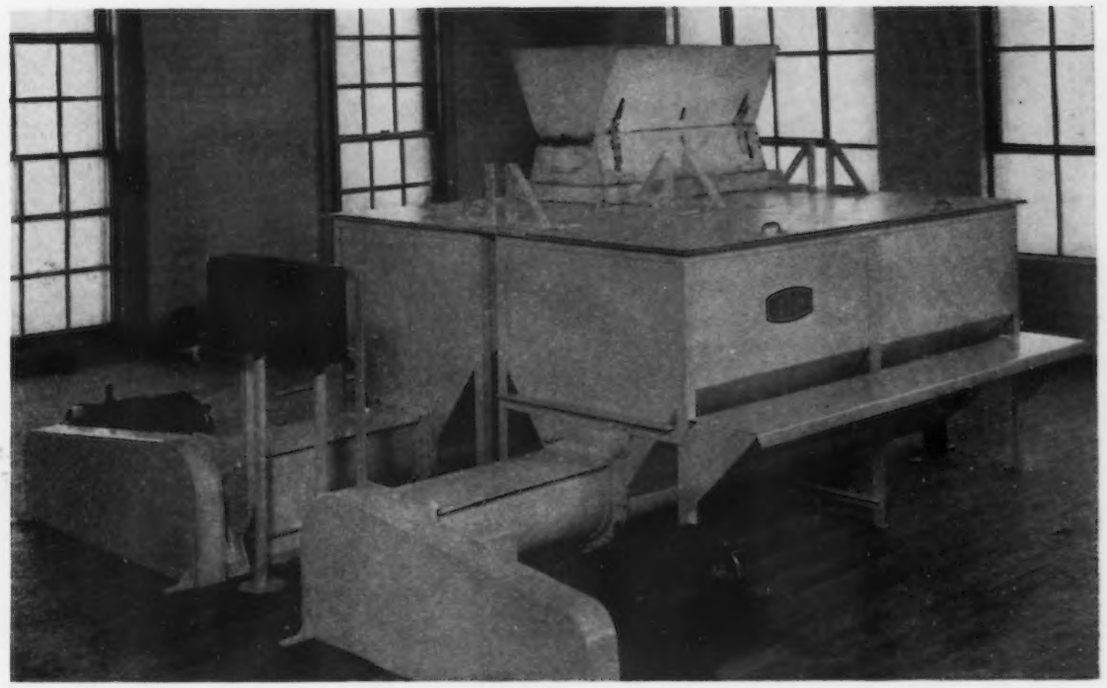
it when the shaft rotates clockwise. The screw may be split in the middle, with adjoining sections respectively right and left hand so that, accord-

hand to the other, but does change the side of the flights working against the material.

A conveyor screw may be designated as "right hand," to push material away from the observer when the shaft rotates counter-clockwise, or to pull it toward him when the shaft rotates clockwise; or as "left hand" to pull the material when the shaft rotates counter-clockwise, or to push

AT RIGHT

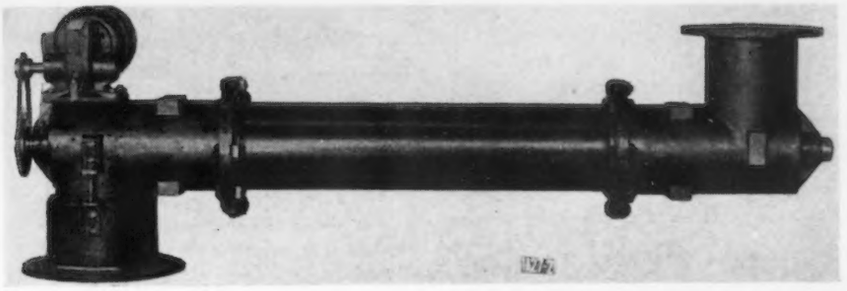
FIG. 8—Uniform feeding of sugar from dump bins to mixers on floor below accomplished by use of screw conveyors. Courtesy of Read Machinery Co., Inc.



o o o

BELOW

FIG. 9—Heavy duty, dust-tight screw conveyor unit for handling abrasive materials. Courtesy of Read Machinery Co., Inc.



ing to the rotation of the shaft, material is conveyed from the middle toward both ends simultaneously, or from both ends toward a common middle discharge.

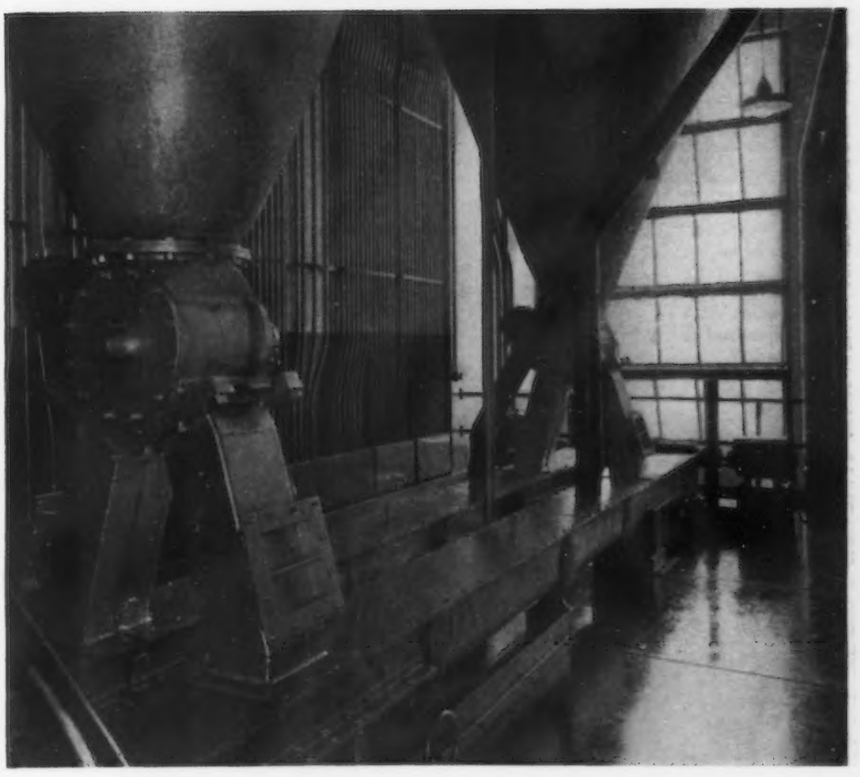
Whenever possible, the thrust bearing should be located at the discharge end of a screw conveyor, so that the conveyor shaft is in tension, with the screw pulling the material toward the thrust bearing. Long lines of conveyor, when pushing the material away from the thrust bearing, may buckle under the compression load. Likewise it is preferred to locate the drive at the thrust bearing end, where mitre or bevel gear thrust may also be taken. The thrust bearing properly located prevents end play in the drive shaft, which is an advantage whether direct coupled or chain-and-sprocket drives are applied.

Loading Capacities

The cross-section diagrams shown in Fig. 4 provide a key to the loading characteristics of various kinds of materials as handled by horizontal screw conveyors. The shaded portion in each sketch represents the average level of material carried in the trough. The light upper line indicates the ap-

BELOW

FIG. 11—Totally enclosed, dust-tight screw conveyors in cast iron troughs for handling pulverized coal in power plant service. Courtesy of Link-Belt Co.



proximate maximum height of material at the carrying side of the spirals when average loading is maintained. The numbers on the diagrams designate certain material classifications as referred to in the following table.

The capacity of a screw conveyor is taken as the volume of material, in cubic feet per hour, which will pass a given point in the trough or be discharged at the outlet, when the screw turns at a specified rate of speed, with the material occupying a certain cross-sectional area of the trough, and when the conveyor is fed at a uniform rate. The average percentage of cross-sectional area occupied by the material is shown in Fig. 4 for five types of loading.

A table covering a few types of commodities ordinarily handled by screw conveyors, with their approximate weights per cubic foot and the capacity classification corresponding to the loadings of Fig. 4, is given herewith.

Equipment Illustrated

Fig. 5 is a combination photograph and drawing designed to explain clearly the action of Link-Belt screw conveyor equipment which includes both horizontal and vertical units. The 10 ft. long, 9 inch diameter horizontal screw takes soap chips from a chip-making machine, feeds them to a 13½ ft. high, 9 inch diameter vertical roto-lift, which discharges the chips into the barrel-filling spout.

Fig. 6 is a view looking down on the open top of a 20 inch diameter Link-Belt screw conveyor 45 ft. long, handling 1600 gallons of paper pulp per minute at 80 r.p.m. in a large paper mill. The action of the screw is clearly indicated here.

In Fig. 7 a Jeffrey screw conveyor of large capacity is shown distributing finely crushed limestone to storage bins at a stone quarry. Although abrasive materials are extremely hard on such spirals, the simplicity of design, ease of maintenance and convenience of use have led to the widespread use of such conveyors in many operations in the cement-manufacturing field.

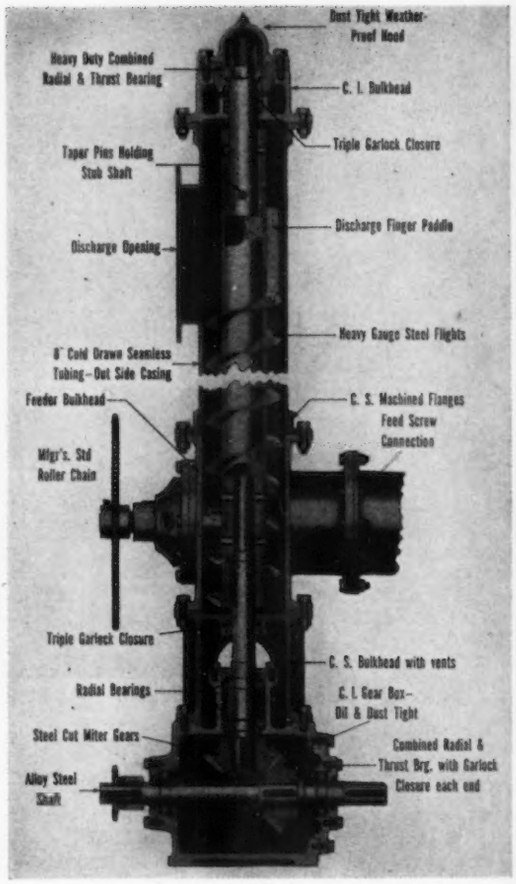


FIG. 10—New Sprout-Waldron Co. vertical screw conveyor for lifting finely ground materials economically.

Fig. 8 illustrates an installation of Read Machinery Co. sugar-handling screw conveyors in a large Western bakery.

In Fig. 9 there is shown a special piece of spiral screw equipment housed in dust-tight cast-iron piping, made by the Read Machinery Co. for Stone & Webster Engineering Corp.

The section view shown in Fig. 10 illustrates the constructional details of the new Sprout Waldron & Co. vertical screw conveyor. It is claimed that the design of this new conveyor frees the load lifted on the helical flights as soon as the discharge port is reached.

Fig. 11 shows two 12 inch diameter Link-Belt screw conveyors operating in cast-iron troughs, with dust-tight gates (the entire system is dust-tight) handling pulverized coal over bunkers serving Babcock & Wilcox boilers in a large power-generating station.

Commodities Adapted to Screw Conveyor Handling

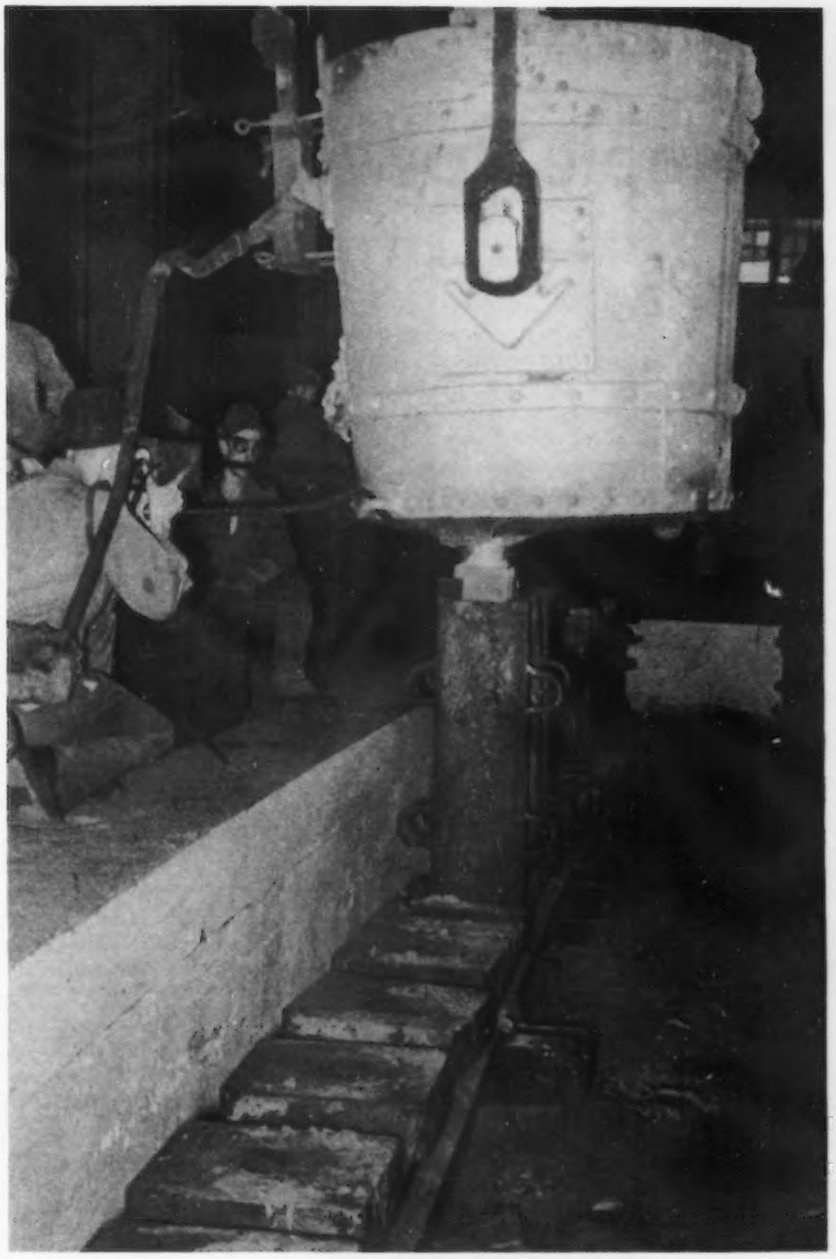
Material Handled	Weight*	Type
Alum, lumpy	50-60	III
Alum, pulverized	45-50	II
Asbestos, shredded	20-25	III
Ashes, dry	35-40	V
Ashes, wet	45-50	V
Asphalt, binder	80-85	IV
Asphalt, top dressing	80-85	IV
Bakelite & similar plastics	30-40	IV
Bauxite, crushed, dry	75-85	IV
Bone black	20-25	IV
Borax	50-55	III
Carbon black, in bulk	4-6	III
Cement, Portland	75-85	IV
Chalk, crushed	85-90	IV
Charcoal	18-28	III
Clay, brick, dry, ground	100-120	IV
Coal, fines or slack	40-45	II
Coal, pulverized	32-35	I
Coal, sized	45-50	III
Coal, lignite	45-55	III
Cork, ground	12	III
Dolomite	75-90	IV
Feldspar, ground	65-70	IV
Flue dust, blast furnace	110-125	V
Fluorspar	110	IV
Fly-ash, boiler-house	30-45	V
Foundry sand	90-100	IV
Fullers earth, raw	35-40	IV
Fullers earth, 35% oil	60-65	IV
Graphite, flake	40	II
Graphite, flour	28	II
Gypsum, calcined	55-60	III
Gypsum, crushed	90-100	IV
Lead oxides	30-150	IV
Lime, unslaked	60	III
Lime, hydrated	35-45	II
Lime, pebble	56	IV
Limestone dust	75-85	IV
Limestone screenings	85-90	IV
Lithopone	45-50	IV
Mica, flake	17-22	III
Ore, zinc, flotation	65-80	IV
Paper pulp, 4% or less	62	III
Paper pulp, 6% to 15%	60-62	IV
Phosphate, acid, pulverized	60	IV
Phosphate, granular	90	IV
Pumice, ground	42-45	IV
Quartz, pulv. or granular	110	V
Salt, coarse	45-51	III
Salt, dry fines	70-80	III
Sand, dry	90-110	IV
Sand, silica, dry	90-100	V
Sawdust	13	III
Shale, crushed	85-90	IV
Shavings, wood	15	III
Slate, crushed	80-90	IV
Sludge, sewage	40-50	III
Soda ash, dense	55-65	III
Soda ash, light	20-35	III
Sulphur, lumpy	80-85	IV
Sulphur, powdered	50-60	IV
Talc	50-60	III
White lead	35-55	IV
Zinc oxide	10-35	IV

Note: This is by no means a complete list of materials. It omits practically all edible grains and foodstuffs, most of which are especially adapted to screw conveyor handling.

* Weight is given in pounds per cubic foot. "Type" refers to the numbered diagrams of Fig. 4.

Data adapted from Caldwell Conveyor Data Book

Production Methods for Composite Steels



CASTING plain steel around a cold tool steel insert, a procedure most commonly used for tonnage work.

WHILE several methods for manufacturing composite steels are in use in the United States, two of the most frequently utilized are the casting and the assembly methods. In the former process, molten metal is poured into an ingot mold so that an insert is completely enveloped, while in the latter method surfaces of metals are especially prepared, joined together by fusion welding and then subjected to heat and pressure.

Products made in these ways include shear knives, heat and corrosion resisting clad metals, composite tool steels, and many other items of which a portion is desired having special characteristics and where the backing metal need not be of the same grade and quality.

In the past few years makers of composite steels in the United States have made considerable headway in their manufacturing processes, especially with reference to better welding of the two component parts. In finishing and forming composite steels, it is desirable that the welds be the best obtainable.

One method in use by four United States manufacturers for affecting good welds is the so-called Armstrong process. These manufacturers are of the opinion that the major trouble in the welding of component parts in composite steels lies in the oxidation of the surfaces previous to being cast around or previous to assembly.

Close study and research on failures have invariably led to placing the blame on oxides which have prevented a substantial and satisfactory weld. The Armstrong process has successfully eliminated the oxide difficulties.

In the case of corrosion and heat resisting clad plates the two surfaces which are to be put together are electrolytically pickled to remove all oxides and, while still wet, are removed to a tank in which iron is deposited electrolytically thereon to a depth of approximately 0.015 in.

The component parts are joined together previous to rolling by fusion welding which occludes furnace gases from reaching areas to be welded and also holds the component parts in proper mechanical alinement. The assembly is now ready for application of heat and pressure which results in a uniform weld between the two composite metals. Subsequent rolling and forming strengthens the weld further, and manufacturers using this method

(CONTINUED ON PAGE 39)

Variable Speed Devices Predominate

VARIABLE speed drives are still a ripe field for the inventor, as seen in recent announcements of power transmission equipment makers. Fundamental design changes have been made by one company, and several new units are offered by firms who have heretofore not entered this field. Drive auxiliaries are described in this review, also new developments in anti-friction and oilless bearings.

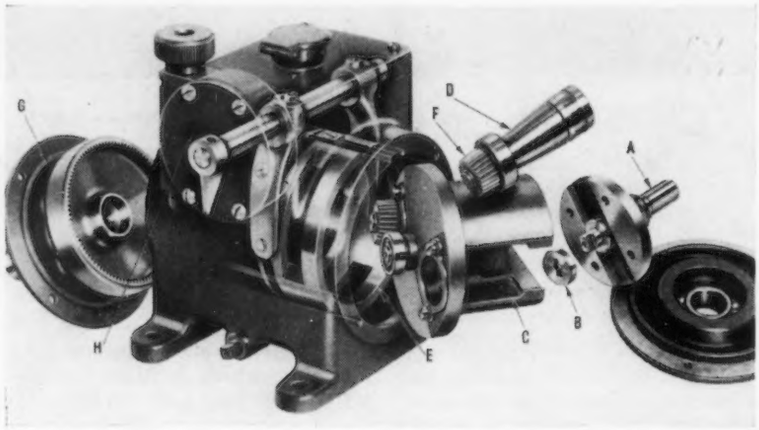
BY means of a novel tractional device that automatically keeps the drive pressure in proportion to both load and speed, a gradually increasing output torque is maintained right down to zero speed in the new models of variable speed transmission announced by *Graham Transmissions Inc.*, 2711 North 13th Street, Milwaukee. Made in sizes from 1/6 to 15 hp., it transmits practically full power over a range of 4:1 and gives speeds in infinite steps from maximum zero and reverse. Its field of application is for driving machine tool spindles, wire drawing machines, mixers, governor drives as well as constant torque uses, such as conveyor drives. Speed is easily changed, either manually or automatically. The transmission comes with the motor either built-in or coupled and a built-in reduction gear is also available.

V-Belt Type

ENTERING the variable speed transmission field for the first time, the *Ideal Commutator Dresser Co.*, 1925 Park Avenue, Sycamore, Ill., is offering the Select-O-Speed transmission, using standard V-belts and available in sizes up to 7½ hp. Variations in speed ratio are effected by two interlocking sheaves which may be pivoted laterally by a slight movement of a control lever. This action automatically causes the sheaves to adjust themselves to a new pitch diameter, thus giving infinite speed variation within the limits of the design. Ball bearings are used throughout, and there is no noise nor vibration. The unit may be mounted on the floor, wall or ceiling in any position.

New Speed Control

A NEW type of speed indicator is announced by the *Reeves Pulley Co., Columbus, Ind.*, for use with its variable speed equipment. Offered as optional equipment for all sizes of variable speed transmission and varispeed motor pulleys and for the Motodrive, the Speedial handwheel accurately registers speed settings of the different units. The actual indication is a definite number of turns or fractions thereof of the shifting screw, but space is provided on the dial face for the user to write in his own calibrations, such as r.p.m. The unit consists of a cast hollow handwheel; a metal cup containing an assembly of pinion and gear and a counterbalance,



THE Graham variable speed transmission is based on the principle of a ring E of fixed diameter in contact with conical rollers D, the speed ratio depending upon the ratio of the diameter of the ring to the diameter of the rollers at the point of contact. Position of the rollers is such that their line of contact is always horizontal and variation in speed is obtained by shifting the contact ring axially by means of the control wheel H. The rollers carry at their small ends pinions F which mesh with a ring gear G attached to the output shaft. Input power comes through shaft A which carries at its end cam B which in turn drives carrier C and at the same time wedges the conical rollers against the contact ring. Pressure automatically conforms to the requirements of both speed and load.

HE "Ideal" Select-O-Speed transmission uses standard V-belts and gives an infinite speed variation over a range of 5:1.

HORIZONTAL enclosed design Reeves transmission equipped with the new Speedial handwheel.

in Recent Power Drives

o o o

By FRANK J. OLIVER
Associate Editor, The Iron Age

o o o

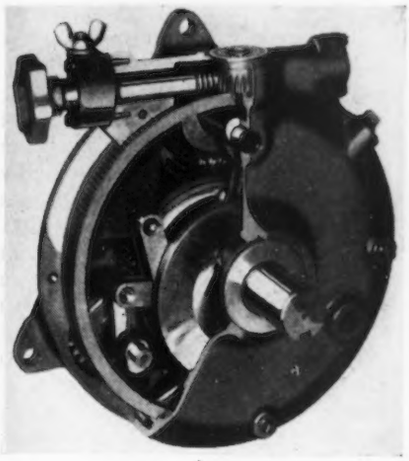
fitting into the recessed handwheel; a scale with pointer, and a transparent lid. Calibrations for whole turns appear around the circumference, while a smaller scale, printed in red, represents tenths of a turn.

Low Speed Variable Speed Control

ORIGINALLY designed as a feeder drive for the milling industry, the Morse variable speed control, made by the *Morse Chain Co.*, Detroit, is suitable for other types of feeders for dry materials and light conveyors where the output speed is low. With the input shaft operating at the recommended speed of 180 r.p.m., the low speed shaft can be made to turn at any speed between 1½ and 40 r.p.m in infinite steps. The unit is self-contained and is not affected by dust and dirt conditions. There are not any bolts nor nuts inside the case that might work loose. To install it, it is only necessary to couple the shafts and bolt the housing to the machine frame by three bolts.

Static Grounding of Belts

ACCUMULATIONS of static charges on driving belts can be dissipated by treating belts with an



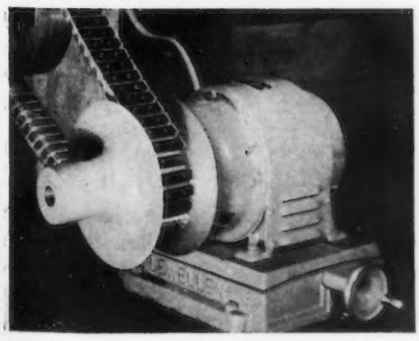
IN the Morse variable speed control, the input shaft carries an integral cam against which three hardened alloy steel rollers bear. From the rollers driving action is transmitted to three high torque clutches by a series of links. Through a ratcheting movement the clutches rotate pinion gears driving a central gear which is integral with the low speed shaft. Clutches and main shafts are mounted on needle bearings, and the links have hardened pins bearing in graphite bronze bushings, all running in a bath of oil.

o o o

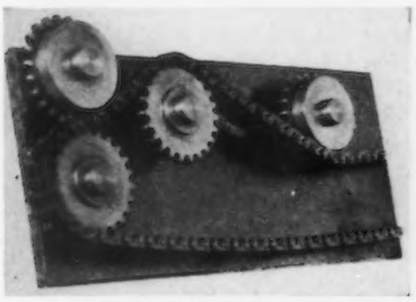
BELOW

O. ZERNICKOW CO., 15 Park Row, New York, is marketing an improved hand tachometer of direct reading type with a push button control for fixing the hand at the indicated speed, to be read at leisure. The gage shows r.p.m. direct or peripheral speeds in f.p.m. if a cutmeter wheel is used on the spindle. Range 40 to 50,000 r.p.m. in three steps, or 12 to 15,000 f.p.m. Instrument comes in a compact bakelite case.

BECAUSE V-belts vary slightly in length in manufacture, for multiple strand drives it is necessary to match belts of fairly equal length. This special testing machine installed by the B. F. Goodrich Co. of Akron, Ohio, measures variations in length while the belt is operating under its rated load. Belts up to 60 in. in length are matched within 1/10 in.; belts up to 100 in., within 2/10 in.



THE new variable speed motor pulley offered by the Lewellen Mfg. Co., Columbus, Ind., has a spring backed cone disk which automatically accommodates itself to various pitch diameters as the motor is shifted on its adjustable base. The belt blocks have hardened steel driving members. All working parts of the pulley are completely enclosed and pressure lubrication is supplied all bearing surfaces. Castings are high tensile iron, machined all over.



DUPLEX silent chain is made by the Ramsey Chain Co., Inc., Albany, N. Y., with half the links of a strand reversed so that the composite chain can engage sprockets on either side. Only clearance for the width of the chain itself need be allowed between gears in intricate mechanisms. Construction of the chain includes the standard Ramsey roller bearing joint.

aqueous dispersion of colloidal graphite. The graphite film thus formed on the belt carries static charges from pulleys to the frames, and it also acts as a belt lubricant. A suspension of colloidal graphite in water is applied to a cleaned belt by brush. Graphite may also be suspended in oil diluted with carbon tetrachloride.

Flexible Couplings

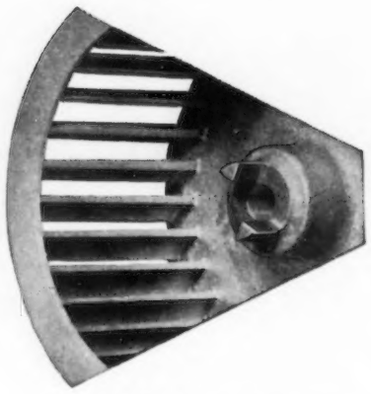
A NEW type Double-flex, three-piece L-R flexible coupling, styled UX, made by the *Lovejoy Flexible Coupling Co.*, 5009 West Lake Street, Chicago, consists of metal jaw units keyed to the driver and driven shafts and a resilient cushion member. This latter is made of a solid tube-shaped section composed of hard rubber (about 90 Durometer) except where it contacts the jaws, where it is fashioned of a softer rubber of about 30 Durometer. Such couplings are long lived and noiseless and require no lubrication.

It is now possible to purchase from fan makers, fans with a hub built in the form of an L-R flexible coupling jaw. Only two units have to be purchased to complete the coupling: one UX hard rubber center piece and one jaw.

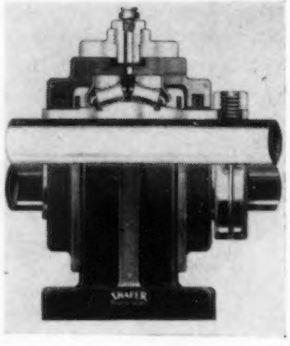
A HUB cast to form the drive unit of a flexible coupling is also found in the Castalu blower fan made by *Advance Aluminum Castings Corp.*, 2742 West 36th Place, Chicago, chiefly for application to oil burners, stokers and air conditioning equipment. By having the coupling as an integral part of the fan, motors with standard shafts can be used and approximately one-third the cost of the coupling is saved. When additional distance between motor and fan is required, an oil-proof synthetic rubber coupling center unit can be installed. It is also possible to obtain this blower with grooved hubs for belt drive. Castalu fans range in size from 3 x 1½ in. to 10½ x 5¼ in.

Roller and Ball Bearings

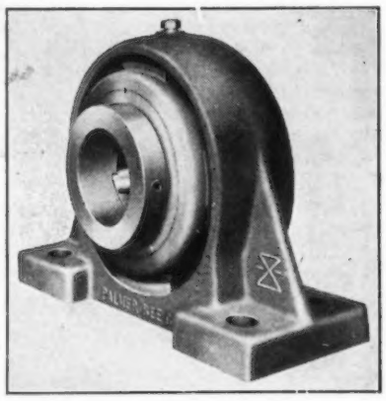
SHAFER BEARING CORP., Chicago, has developed a new line of roller bearing pillow blocks for heavy duty services embodying welded steel



A FLEXIBLE coupling is cast in the hub of the Castalu aluminum blower fan.



THE bearing cartridge is carried in a welded steel frame in the Shafer Super Sealed pillow block.



A CAST steel self-alining pillow block equipped with Hyatt heavy duty precision type roller bearing is offered by the Palmer-Bee Co., Detroit. A ball and socket design permits an oscillating movement in any direction of approximately 3 deg. maximum. Comes in shaft sizes from 1 15/16 to 6 7/16 in.

housing construction and the Super Seal protection against unusually severe dirt conditions. Electrically welded steel construction provides a rugged housing of compact dimensions with bearings of ample capacity for severe applications. The double row self-alining roller bearing is mounted in a substantial cartridge housing containing the three sealing members. This cartridge is then mounted in the welded steel frame. Bases are machined, and of four bolt type.

DEVELOPED primarily for roller conveyors and trolleys, but adaptable to casters, dollies, handtrucks, door hangers and other guide rolls, a new line of commercial ball bearings is being offered by *Palmer-Bee Co.*, Detroit. Capacities range from 30 to 2250 lb. Inner race is made of cold drawn steel, finished on an automatic screw machine. Bore is broached hexagonally and the race is carburized 1/32 in. deep to 62 Rockwell. Outer race is coined under heavy pressure in two halves which are similarly heat treated. Commercial grade A hardened steel balls are used and they contact both outer races. Housing is of sheet steel, drawn into cup form and flanged down after the bearing is assembled. Steel seals are of pressed sheet steel, fitted close. These bearings are made in outside diameters ranging from ⅞ to 3 9/16 in. to fit hexagon axles from 5/16 to 1¼ in.

ALL *Norma-Hoffmann* precision bearings are now packed in grease Stability-Tested in oxidation absorbtion bombs to determine its resistance to oxidation, hardening and loss of lubricating properties both in storage and in operation. As a further measure of protection, Norma-Hoffmann self-sealed bearings, whether boxed singly or packed in rolls, are wrapped in glassine-lined aluminum foil, which further protects the grease against rapid deterioration.

Oilless Bearing

OMAN is a self-lubricating metal for bushings, bearings, slides and gibs, made by *Woodworkers' Tool*

AT LEFT

THREE of the six types of seals available with the new line of Palmer-Bee ball bearings. From left to right: Type A, felt outer seal, no inner seal; type B, felt outer seal and steel inner seal; and type SB, steel outer seal and steel inner seal.

AT RIGHT

A SELF-LUBRICATING bearing made of Oman metal, a new type of copper-lead mixture.

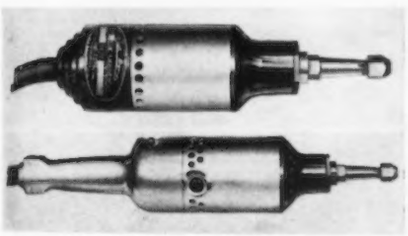
Works, Inc., 222 S. Jefferson Street, Chicago. Oman metal is made up of a copper matte having its interstices filled with amorphous virgin lead, in other words, a solidified emulsion of lead in copper. The lead acts as a lubricant and the copper as a conductor of heat, making it suitable for high temperature service. Any proportion of lead and copper can be used, and the characteristic structure is altered only dimensionally. The process of manufacture involves intense reactions at high temperatures, and only basic metals of extreme purity can be successfully used.

Oman metal bearings are said not to score a steel shaft, even though loaded much beyond their rated capacity. The lubricant can not be expelled from the load side while the shaft is at rest. The metal machines readily without the use of a cutting lubricant.

New Designs in Portable Electric Tools

EXTENSION of range is featured among the portable tools introduced in recent months. Equipments described include electric drills, grinders, sanders (including an air-driven type), circular saws, screw drivers and a suspension device for portable tools.

SKILSAW, INC., Chicago, has extended the range of its drills to include three new types, combining low speed and high torque. Model 101 has ⅝-in. capacity in steel, no-load speed of 300 r.p.m., and is intended for maintenance service. Model 121 has ¾-in. capacity, no-load speed of 250 r.p.m. and is capable of intermittent production drilling. Model 141, a heavy duty type equipped with a No. 3 Morse taper socket, has ⅞-in. capacity and speed of 200 r.p.m.



NO. 12 (above) and No. 7 are two new Van Dorn high speed die grinders with wheel capacity of 2½ and 2 in., respectively.

Die Grinder

TWO new high-speed die grinders are announced by the *Van Dorn Electric Tool Co.*, of Towson, Md. Especially adaptable to high grade precision grinding, they have spindle housings of steel, with bearings mounted at the extreme ends to absorb radial load. Both die grinders are equipped with universal motors and ¼-in. single-purpose chuck to accommodate wheels, pencil stones, rotary files and burrs. Maximum wheel size is 2 in. on the No. 7, 2½ in. on the No. 12.

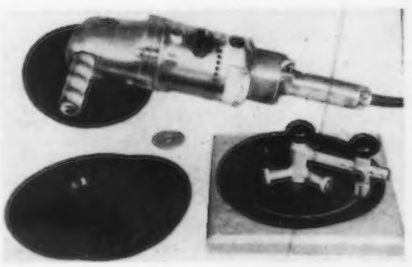
Sanders

ANOTHER *Van Dorn* product is a two-speed disk sanding unit, adaptable to use both 7 and 9-in. abrasive disks. Speed adjustment is by means of a gear shift arrangement in the housing. Armature and intermediate gears are spiral and the spindle gear is spiral bevel. The no-load speed for 7-in. disks is 4200 r.p.m.; for 9-in. disks, 2700 r.p.m. Motor is a universal type

FOR drilling and filing in close quarters on a flexible shaft, Stow Mfg. Co., Inc., Binghamton, N. Y., is offering the series 420 close corner angle head in ¼-in. chuck capacity.

THREE speeds are available in the 9-in. heavy duty portable disk tool brought out by the *Milwaukee Electric Tool Co.*, 120 N. Water Street, Milwaukee. It combines a two-speed sander, a feather-edger and a polisher. The low speed is used for feather-edging with a special sandpaper disk on a curved face flexible steel backing. The intermediate speed is used with the 9-in flat nested spring steel backing pad for grinding off high spots, and the high speed is available when the abrasive disk is trimmed down to 7-in. diameter.

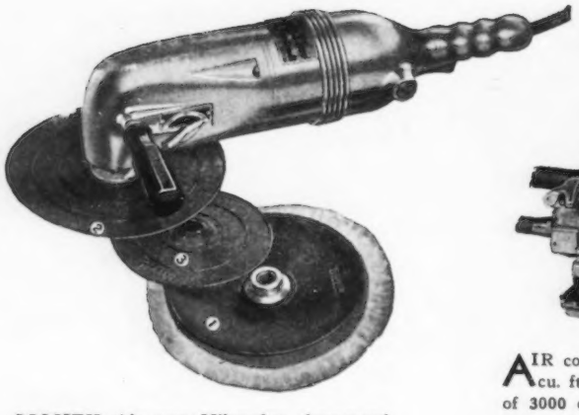
TRIPLE reduction, helical cut gears, ball bearings on the armature and Timken bearings on the chuck spindle are found on the new line of Skilsaw heavy duty drills.



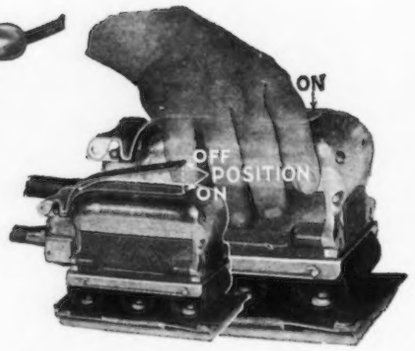
A DISK cutter is furnished with the new Van Dorn two-speed electric sander, so that frazzled 9-in. disks can be trimmed to 7 in. and run at a higher speed.

MODEL N is a new and smaller size disk sander made by *Skilsaw, Inc.*, of Chicago, for grinding of light welds and utility sanding. It is amply powered for this work and also for use with wire wheel brushes. Straight line ventilation is used for cooling and there is an air filter to protect the commutator and windings from abrasive dust. Ball bearings are used on all shafts.

AN automatic valve control is now available for use on all Speed-Bloc pneumatic sanders made by *Sterling Products Co.*, 2457 Woodward Avenue, Detroit. This control automatically starts and stops the machine and controls the flow of water when a hose is connected for wet sanding, thereby saving approximately 15 to 33



WITH this new Milwaukee three-speed heavy duty disk machine, it is possible to remove paint, sand, feather-edge and polish at the proper speeds.



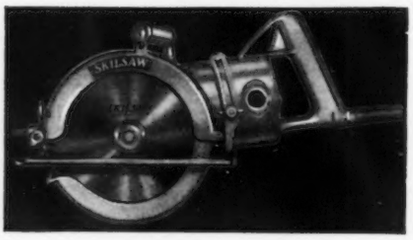
AIR consumption is reduced to about 5½ cu. ft. per min. under full load at speeds of 3000 oscillations per min. with the new automatic valve control found on Sterling Speed-Block sanders.

ADVANTAGES cited for the Stanley Nos. 02 and 02H screw drivers are their light weight, compactness and balance for close quarter or long reach work. Both sizes are available in four speeds and are equipped with an adjustable tension clutch. The No. 02H has an "automatic" pistol type handle, with double pole, trigger type switch.

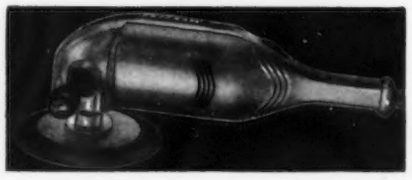
per cent of air ordinarily consumed in the operation of this machine with manual control. Operating efficiency is also improved since both the operator's hands are free to manipulate the machine or the product being sanded.

Portable Saws

GREATER power, faster cutting speed, better balance and new safety features are found in the new model 87 *Skilsaw* portable electric saw. It has a 9-in. blade and cuts to a depth of 2⅞ in. Blade has a standard free speed of 3600 r.p.m. and is protected by an automatic telescopic guard. The frame is of die cast aluminum alloy. All shafts are mounted on ball bearings. A blower arrangement is incorporated.



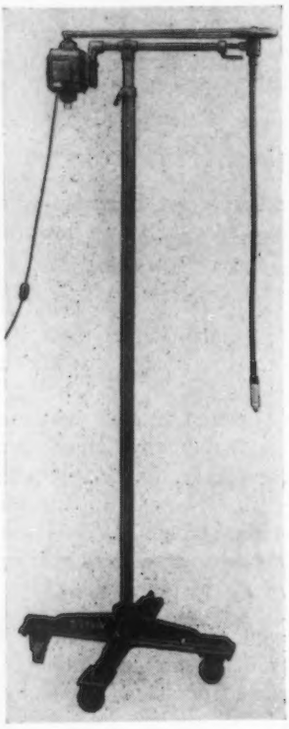
SKILSAW model 87 electric handsaw is 19 in. long and carries a 9-in. blade.



SKILSAW model N disk sander has a balanced streamlined body, 15¾ in. long. It weighs 10½ lb.

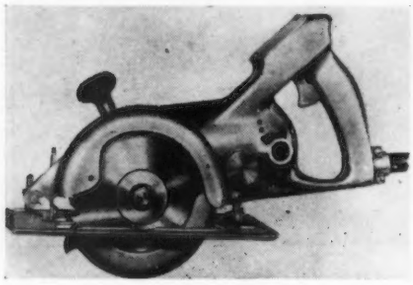
A NEW type duplex handle, with two triggers, makes the new Stanley W-60 light weight, heavy-duty safety saw easy to handle in any position. Made by *Stanley Electric*

(CONTINUED ON PAGE 66)

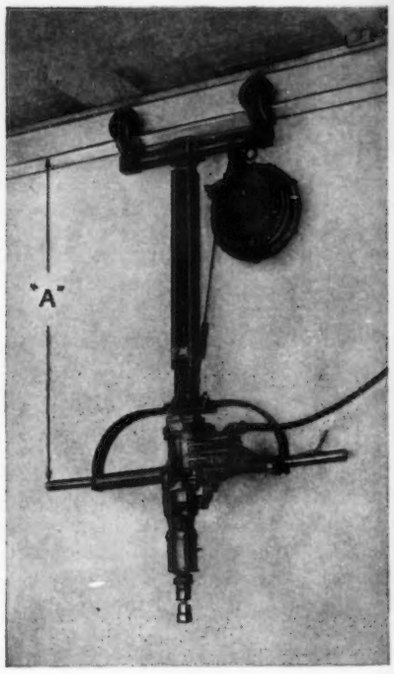


ASSEMBLY X of the Stow portable screw driving and nut setting equipment is mounted on a heavy caster base to keep the center of gravity low.

STANLEY W-60 safety saw comes packed in a metal carrying case, with combination rip and cross-cut blade, ripping gage and three-wire cable.



THE Van Dorn No. 35 trim saw has a 5 in. blade, weighs 11¼ lb. and is 14 in. in overall length.



THE Thor torque-arm balancer supports the weight of the tool at work level and resists the reaction torque at the same time.

Production Methods for Composite Steels

(CONTINUED FROM PAGE 33)

find that microscopic tests disclose complete diffusion and a uniform weld throughout the finished product.

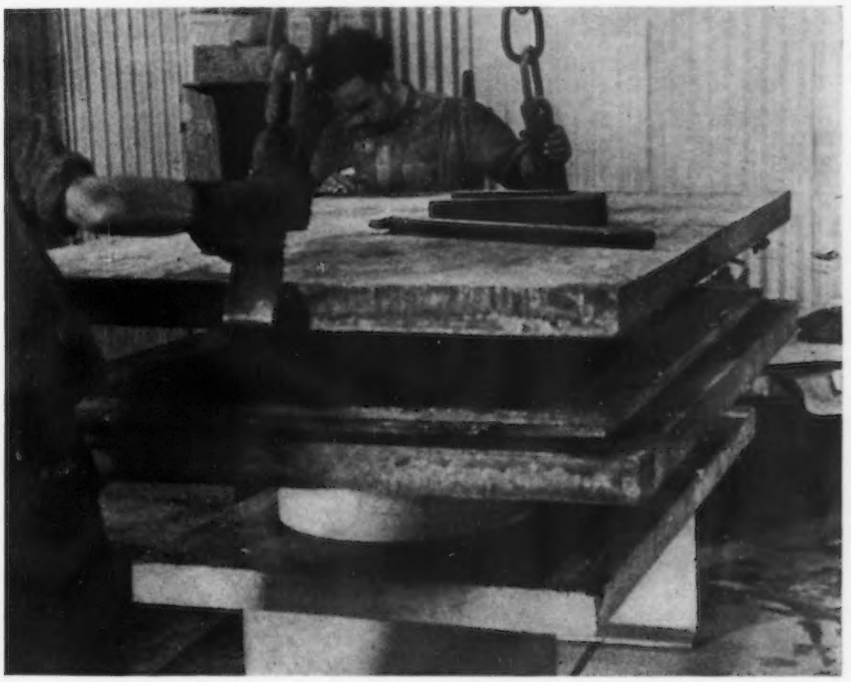
In the casting process, where molten metal is often poured around a cold insert, the Armstrong method has been used to advantage; in this case, the inserts are electropickled and electroplated prior to placement in the ingot mold. The process is especially advantageous in cases where the cold insert is tool or alloy steel, containing more than 0.50 per cent tungsten, chromium, nickel or cobalt.

Another successful method of making clad steel involves placing a special coating on the side of the mold wall prior to casting. The coating is chiefly composed of ferroalloy of the desired parent metal plus certain chemical catalysts so that admixture of the coating and cast metal is obtained upon pouring.

The casting method is most frequently used for tonnage work and is generally the least costly. In the assembly method the cost is higher because the two steels have already been manufactured and must be put together. The advantages in the assembly method are usually found to be: (a) better yields, (b) closer control of the relative proportions of components, and (c) cleanliness of the weld zone.

The cementation process of making composite steels is also used widely in this country. Cements perfected recently are often complicated combinations in which the basic constituents are iron filings, silico-manganese, ferro-silicon, nickel and borax. So effective are some of these cements that it is only necessary to squeeze the excessive cement out and, after it is hardened, a good bond is obtained. Temperatures in the vicinity of 2300 deg. F. are employed in these cementation processes; pressure is applied after heating to remove any excess cement and to avoid distortion during cooling.

A recent refinement of the general cementation process is disclosed in the cladding of stainless steel on wall board by putting a special cement on the latter surface, placing the stainless sheet on this and then putting the assembly through rolls to bond the two components together.



THIS assembly method is generally more costly than casting, but yield is better and weld zone is very clean.

Main advantages, composite steel makers claim, include: A hard working area with a tough backing; a reduction of original cost when one of the components is expensive; and ability, in a composite tool steel, to drill dowel holes, etc., through the soft backing steel after hardening. The possibilities in the use and manufacture of composite steels are comparatively unlimited and considerable research is now being done on welding processes, types of backing materials, and subsequent production and handling.

. . TRADE NOTES . .

Timken Roller Bearing Co., Canton, Ohio, has appointed the following distributers for Timken Graphitic steels for dies and tools: A. Milne & Co., 745 Washington Street, New York, 109 Broad Street, Boston, and 21 North May Street, Chicago, for the six New England states, New York metropolitan district, eastern New York state and northern New Jersey; Hamilton Steel Co., E. 131st and Taft Avenue, Cleveland, for the State of Ohio excepting the Dayton district and the city of Toledo; Craine-Schrage Steel Co., Detroit, to supply Michigan and Toledo; Quality Steels, Inc., Dayton, Ohio, to cover that district, and Coulter-Sibbett Steel Co., 240 Eighth Street, Oakland, Cal., for northern California.

Revere Copper & Brass, Inc., Dallas division, Chicago, has opened an office at 915 Second National Bank Building, Houston, Tex., with Hans O. Howard in charge.

Dravo-Doyle Co., Pittsburgh, will represent the McKay Co., Pittsburgh, as distributer for the McKay line of arc-welding electrodes in western Pennsylvania, eastern Ohio and all of West Virginia.

Ferro Enamel Corp., Cleveland, offers to the porcelain enameling industry a new product called Stabilite which maintains color uniformity between normally processed and recoated white porcelain enameled parts, the company says.

Simonds Mfg. Co., Pittsburgh, has changed its name to the Simonds Gear & Mfg. Co. There will be no change in management or policy.

Norma-Hoffmann Bearings Corp., Stamford, Conn., due to growing demand for ball, roller and thrust bearings, has completed an extension to its present buildings and ordered new machine tool equipment.

Payson Mfg. Co., Chicago, has purchased the inventory, including patterns and dies, of the Schlangen Co., 3735 North Western Avenue, Chicago. The latter firm is discontinuing the hardware manufacturing business.

J. E. Plymton & Co., Railroad Avenue, Norwood, Mass., maker of gray iron castings, has sold its foundry property to James Sutherland and Alden W. Drinkwater of Bay State Iron Foundry, South Boston. The foundry buildings, trestle, coal pocket and 59,573 sq. ft. of land are assessed for $29,500. The property has been a foundry since 1854, and operated by J. E. Plymton & Co. since 1890. The Bay State Iron foundry will move its business to Norwood.

Special Scrap Cutting Car Employed In Yards of Large Steel Mill

By ORLIE TRENTHAM
The Linde Air Products Co., Denver

o o o

WHERE scrap cutting is conducted on a very large scale in scrap yards covering considerable territory, as in many steel mills, portable cutting equipment is necessary. The quantity of oxygen and acetylene needed for such large scale operations often exceeds, however, the capacity of standard portable equipment. It was for this reason that the Colorado Fuel & Iron Corp. constructed and has put in operation the specially equipped railroad car shown in the accompanying illustrations.

The scrap cutting car is moved by a switching locomotive to that point in the yard nearest the cutting operation to be done. The operators then take their cutting blowpipes or torches and hose from the outlet box beneath the car and proceed to their respective jobs, as many as four operators working at a time from one side of the car. When short moves are made, the hose and blowpipe are merely hung on the hooks on the side of the car.

Acetylene Generator in Separate Room

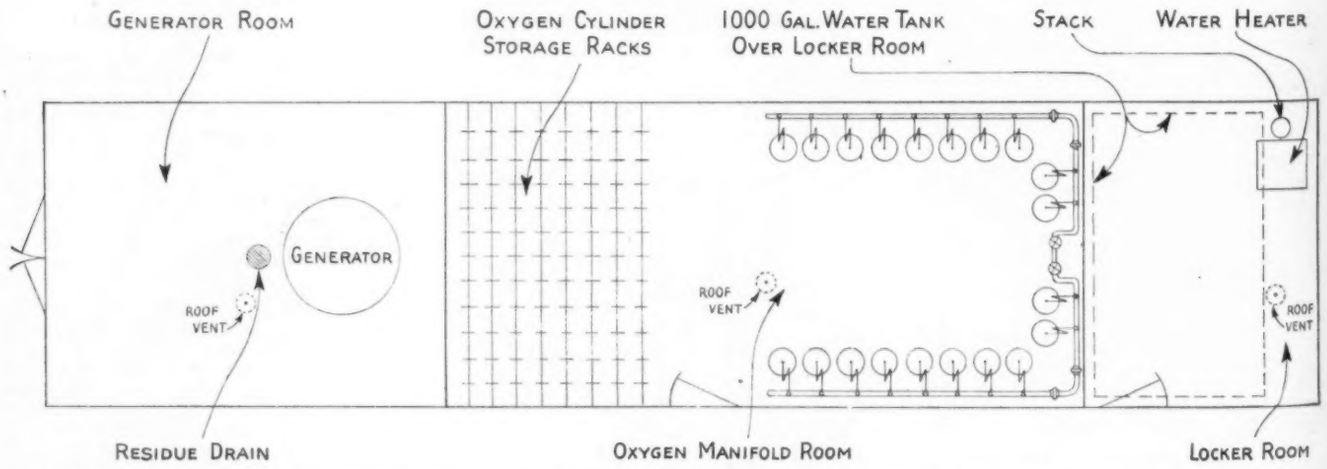
From the accompanying sketch it will be seen that the car is divided into three rooms. The acetylene generator room, located at the left end, contains the generator, carbide drums, and the necessary tools and equipment. The walls, floor and roof were constructed by welding, and the frames of each of the four windows in the room were welded to the car. The generator, located opposite the door, is bolted securely to the floor. Steps and platform have been installed to provide easy access for charging and for removing the dome of the generator for periodic cleaning and inspection. In the floor of the car immediately below the generator residue-valve there is an opening to a drain pipe. In the roof of the room there is a 6 in. diameter ventilator covered with a 50-mesh screen, which in turn is covered by a metal hood. Other vent pipes from the generator itself extend through the roof.

The oxygen storage and manifold room is in the middle of the car. It consists of two sections, one for the storage of oxygen cylinders and the other for the 20-cylinder oxygen manifold. This room also has four windows, two on each side, and a ventilator through the roof.

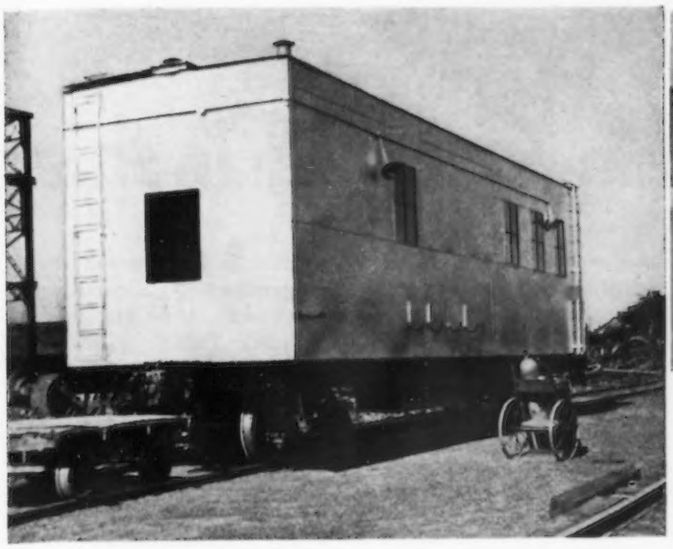
After the cylinders have been attached to the manifold, they are strapped securely in place by a cable. This cable has a turnbuckle at each end and passes through hooks placed between the cylinders, as shown in the illustration. With this arrangement the cylinders are held tightly in their rack and all vibration is avoided.

Water Supply in Locker Room

The locker room for the operators is located at the opposite end of the car from the generator room. Clothes lockers, benches, a water heater, and a wash room have been installed in this room. At the top of the locker room there is a 1000-gal. water tank, which provides enough water for six charges of the generator, together with about 150 gal. additional, for flushing the generator and for the hot water heater. In addition to supplying hot water for the operators to wash in, the water heater has the very

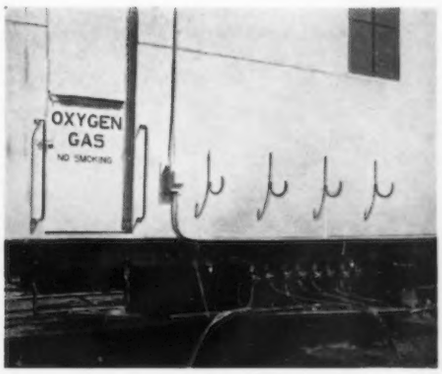


INTERIOR plan of specially-equipped railroad car which provides ample quantities of oxygen and acetylene for large-scale scrap cutting.

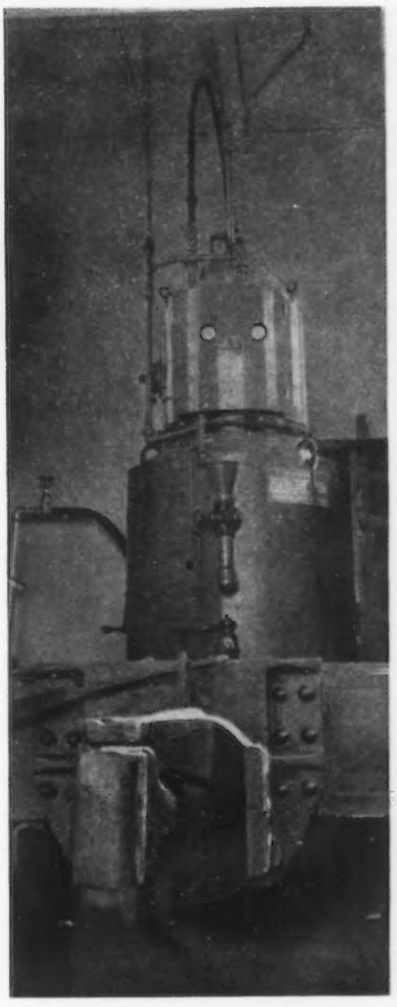


COMPLETED scrap cutting car from locker room end.

STORED oxygen cylinders, showing racking arrangement. Provision is made to eliminate vibration.



OUTLET boxes are provided under each side of the car. This view shows one of them, open for cutting operations.



LOOKING into the generator room. Steps and platform facilitate charging and removal and replacement of dome.

important function of heating the entire car in cold weather. Pipes extend from the heater through the oxygen manifold room and into heating coils in the generator room.

The outlet boxes, one under each side of the car, contain the oxygen and acetylene outlets for attaching the regulators. The acetylene, upon leaving the generator, is taken to the outlet box through 1-in. pipe, which, at the box, acts as a header. This header is provided with four nipples, each of which has an adapter for attaching a station regulator.

The oxygen, upon leaving the manifold, is taken by a ½-in. pipe through a 250-lb. angle globe valve before entering the outlet box. Within the box, this pipe also acts as a header to which are attached the station oxygen regulators. Since the operators work only on one side of the car at a time, four oxygen and four acetylene regulators are the most that are ever needed. When changing cutting operations to the other side of the car, the operators merely move their regulators to the opposite outlet connections.

Although no regulations exist that cover cars for this service, the instructions of recognized regulatory bodies were carefully consulted in constructing this special scrap cutting car.

D. O. James Machine Co. Celebrates 50th Birthday

FIFTY years ago the D. O. James Machine Co., forerunner of the D. O. James Mfg. Co., Chicago, one of the largest manufacturers of gears and speed reducers, was founded by D. O. James.

A new company was incorporated in 1893 under the name James-Grant & Foote and in 1895 Mr. James sold out to James Grant and started the firm of James & Foote which made the original line of gears, tools and dies with the addition of milling machines, bicycles, bicycle parts, wringers, hangers, sprocket wheels and hubs. In 1905 the D. O. James Mfg. Co. was incorporated, placing on the market what is said to be the first planetary speed reducer.

Court Voids NLRB Ruling On Fansteel Rehiring

CHICAGO.—Stating that "an employer is warranted in discharging his employees . . . when they take and retain exclusive possession of his property against his will," the Circuit Court of Appeals here has voided a ruling of the NLRB that the Fansteel Metallurgical Corp. must reinstate 92 persons discharged for conducting a sitdown strike in the plant in February, 1937.

Die Castings Gain Ground in Hard wa

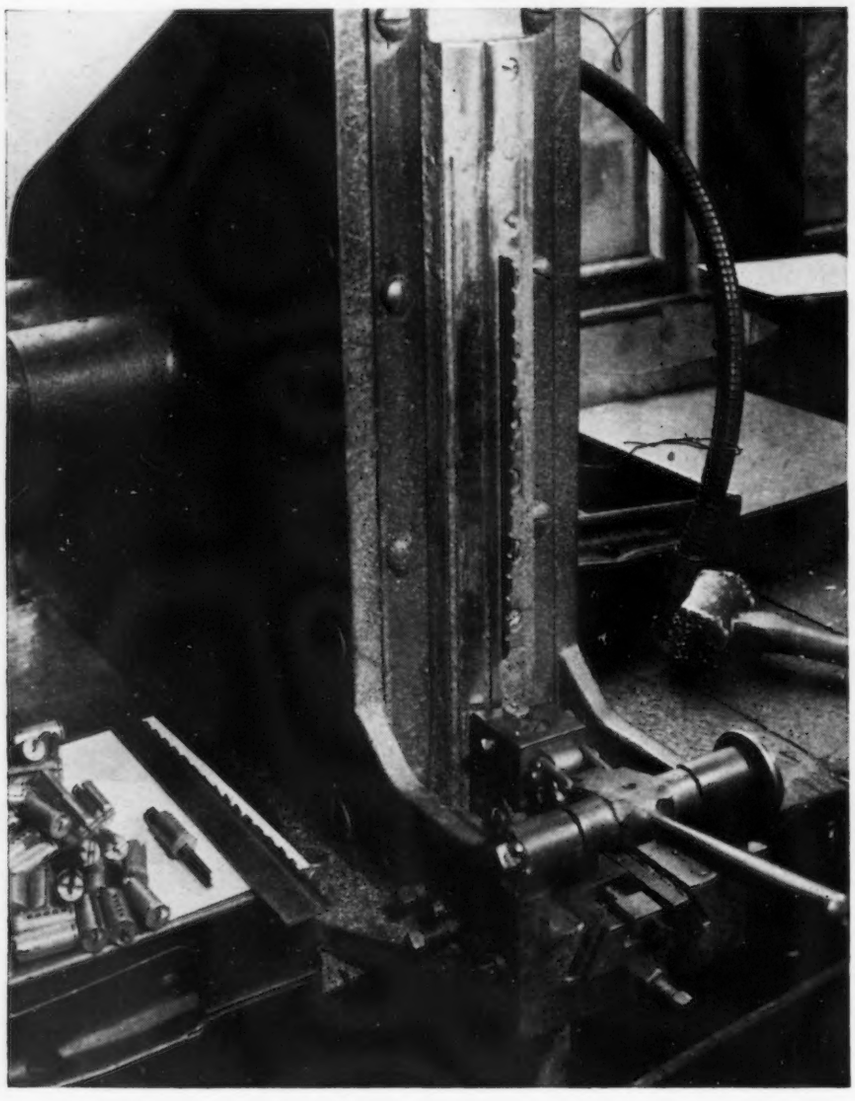
By HERBERT CHASE

° ° °

DESPITE the accuracy maintained in hardware die castings as produced, many of these require some machining, if only for removal of flash or fins which remain in cored holes and, where not already removed, at die partings. There is thus required, as in all die casting shops, equipment for machining. At Yale & Towne, the work is done in several departments in which castings and some other parts are prepared for later assembly. Accompanying illustrations show some of the operations performed. Nearly all such operations are facilitated and expedited by using well designed jigs, many of these being applied to power-operated punch presses, drill presses, lathes or broaching machines. Some of these operations, however, are done by hand or in hand-operated arbor presses. So well is this work planned that a large proportion of the operations, none of which, of course, require heavy cuts, are done at rates varying from 1000 to 1800 or more per hour, making the cost per operation extremely low.

Because of the small, close-fitting parts employed in locks, great care is taken to remove all fins as well as any

POWER-DRIVEN arbor press with quick-loading fixture used for broaching fins from the key slot in pin-tumbler plugs, some of which are seen at left, one with a gage passed through the slot. A similar machine but with a longer ram is used to saw or broach the entire slot, when this is not cored.



HAND arbor press with quick-acting fixture six cored holes in plugs. Six broaches are ground. A spring, compressed when the plug is ally when the

rdware Production—II

IN the first part of the article, die casting techniques used by Yale & Towne were described, with the chief emphasis on the intricate dies employed in multiple cavity work. The second part is concerned with subsequent machining operations on small, cored lock plugs.

burrs thrown up in machining, since any which remain may interfere with correct assembly or with the proper positioning and functioning of parts, such as the pins or flat stamped tumblers required in cylinder locks.

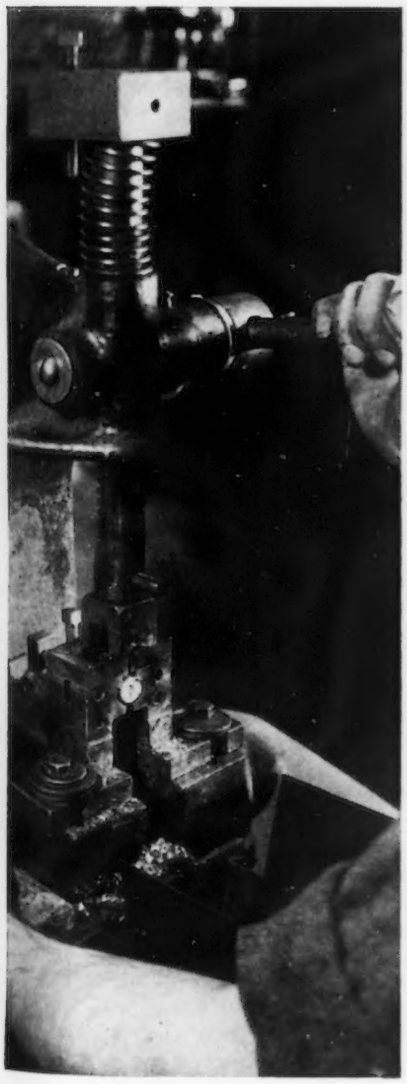
Among the important parts machined are the cylindrical "plugs" in which the tumblers are later inserted in accurately sized holes cored in the plugs. These plugs vary from about ¾ to 1¼ in. in length and from ⅜ to ½ in. in diameter. A typical plug has five cross slots for tumblers, five spring-seat holes, three projecting lugs and recesses front and back where the longitudinal key hole comes. As nearly all the holes are cored and the total space is small, the cores and the broaches which clear the cored holes of fins have to come very close together. As the key hole is longitudinal and passes through the transverse tumbler holes in flat-tumbler locks and intersects holes in pin-tumbler locks, it is no small problem to size these holes accurately and to free them of fins and burrs where they intersect.

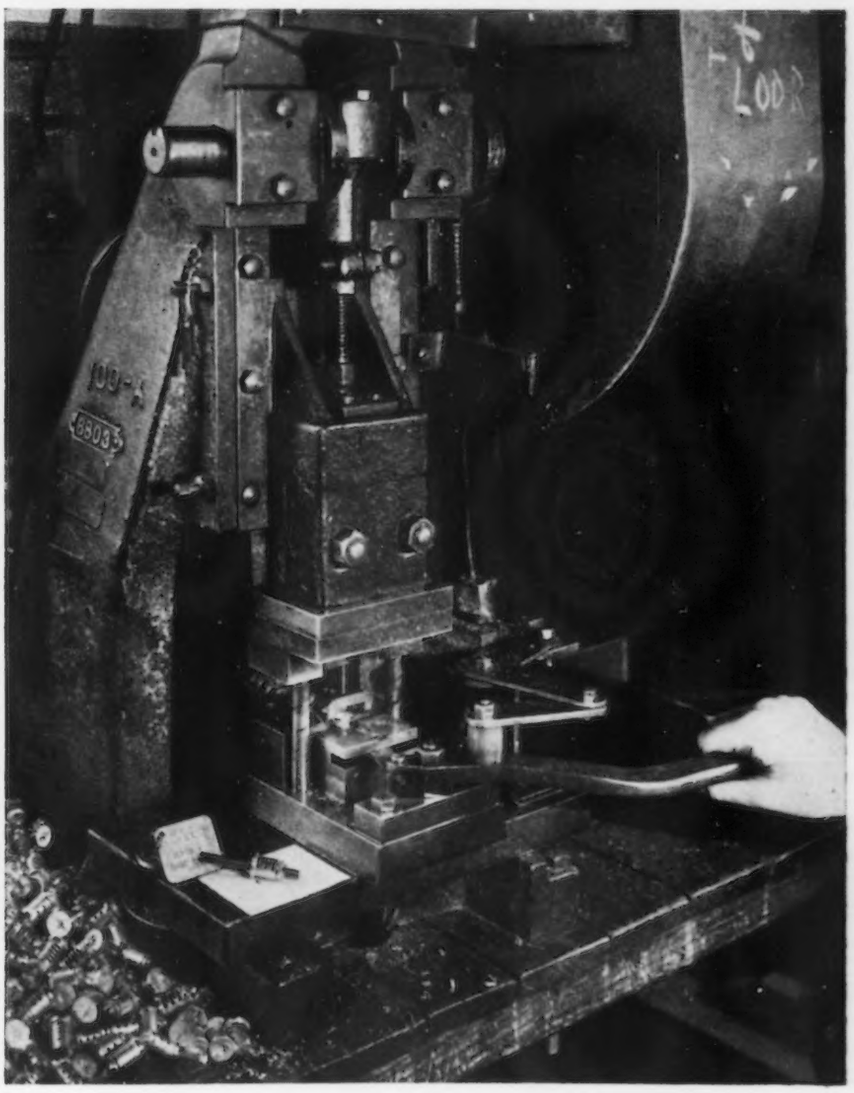
In pin-tumbler locks, the key hole is cored and the pin holes are cored, but

ixture
es are
lug is
n the

as used in simultaneous broaching of fins from carried in a holder such as that in the left fore-loaded in the fixture, ejects the plug automatic-broaches are raised.

THIS power press is used for punching and simultaneously broaching the key hole which runs from end to end of the flat-tumbler plug (shown at left with a gage in place). The tool passes through four walls of metal only 0.015 in. thick, and the fixture is made to support each wall. This fixture is a quick-operated type, opened and closed by a hand lever with interconnecting links for tripping the press.





only for a part of their depth, the remainder being drilled and reamed. Drilling is done in a sensitive, quick-acting drill press by operators who become so skilled that they can drill the five holes individually in 1200 plugs an hour. Drilling throws burrs into the key hole, which then has to be broached. This is done at about the same speed, the broach being in a light hand-operated arbor press. In certain plugs, the key hole passes through the full length of the plug and intersects its cylindrical face. Where such holes are cored, fins are cleared by a broach in a quick-acting power press. In other plugs, the hole, which is not flat but sinuous in section, is cut by a broach or saw built up in seven sections each 6 to 7 in. in length. The tool is reciprocated in a special power-driven broaching machine with a counterweighted slide on which the sections are mounted.

Certain flat-tumbler locks have the five tumbler slots cored, and the cores are separated by walls only 0.015 in. thick. The slots are first cleared of fins by using a multiple broach having one blade for each hole. This work is done on a small hand-operated arbor press with a quick-acting fixture into which the plug is pressed against a spring. The broaches float on pins in a holder attached to the ram, but are accurately guided by the fixture. As soon as the ram has been lowered and raised, the plug is released and ejected by the spring. Approximately 1000 plugs thus have their five tumbler slots broached per hour.

These plugs are then delivered to a small power punch press in which the key hole is punched through the length of the plug, passing in this process, through four walls which are only 0.015 in. thick. The punch has broaching teeth which size the holes accurately after the punch has cleared them. During this process, the plug is held in quick-acting toggle-operated jaws, one of which has steel projecting tongues which fit into the tumbler slots and support the thin walls being pierced and broached. This operation is done at the rate of 900 plugs an hour.

These operations are typical of many on plugs, shells and numerous other die-cast parts. Details cannot be given for lack of space, although one operation not described is illustrated. This is a hand filing operation in which a burr is removed from two plugs simultaneously on a simple fixture.

Finishing

When necessary machining is completed, the die castings are delivered to various departments where such operations as polishing, buffing, tumbling, lubricating, chemical treatment, plating, lacquering or the like are performed, after which the castings are ready for assembly into finished products. Many castings are given a simple chemical "Cronak" dip designed to inhibit corrosion. Other parts hidden in assembly are given a dip in Aquadag which leaves a coating of graphite having lubricating properties. Some parts are tumbled in sand to remove small fins or burrs and sharp edges, but only on parts in which close dimensions are not essential. Some barrel plating and much tank plating are done to apply brass, nickel, chromium and other finishes. From the foregoing it should be apparent that the entire production is well planned and well executed, and that the use of die castings introduces many economies which are bound to result in an extension of their applications in hardware manufacture.

o o o

PIN - TUMBLER plugs have a burr filed from the under side of the head in this simple fixture having two light brass slides recessed to fit the plugs. The latter are drawn toward the operator on the slides which are returned by springs at the end of the stroke, when the operator drops the plugs into a box held in her lap. Production is 1800 plugs an hour.

o o o

Exports (In Gross Tons)

	June		Six Months Ended June	
	1938	1937	1938	1937
Pig iron	24,639	105,194	215,780	305,851
Ferromanganese and spiegeleisen	61	104	220	1,336
Other ferroalloys	105	279	655	1,169
Scrap, iron and steel	160,577	514,651	1,785,372	2,134,765
Scrap, tin plate	999	2,905	8,831	16,165
Waste-waste tin plate	490	2,181	4,110	21,170
Pig iron, ferroalloys and scrap	*186,871*	*625,314*	*2,014,968*	*2,480,456*
Ingots, blooms, billets, sheet bars	10,383	17,569	118,418	59,420
Ingots, etc., alloy steel, incl. stainless	188	2,614	4,899	3,861
Skelp	429	8,396	6,618	39,933
Wire rods	3,392	3,968	16,967	24,364
Semi-finished steel	*14,392*	*32,547*	*146,902*	*127,578*
Bars, plain and reinforcing	11,791	12,101	78,798	57,851
Bars, alloy steel	219	521	2,242	3,437
Bars, stainless steel	13	68	211	149
Iron bars	159	130	858	1,278
Plates, plain and fabricated	14,140	33,392	118,377	139,267
Plates, alloy steel	129	17	1,892	2,180
Plates, stainless	2	5	134	16
Sheets, galvanized steel	6,622	7,001	33,431	34,089
Sheets, galvanized iron	451	148	2,000	2,720
Sheets, black, plain steel	15,405	24,418	9,0259	120,949
Sheets, alloy steel	358	566	2,289	1,805
Sheets, stainless	141	56	1,190	318
Sheets, black iron	937	1,990	3,422	5,595
Hoops, bands, strips, plain steel	4,947	10,034	30,096	59,805
Hoops, bands, strip steel, alloy	46	248	158	768
Hoops, bands, strip steel, stainless	50	18	300	281
Tin plate and taggers' tin	12,840	23,207	89,227	149,658
Terne plate (including long terne)	346	290	2,557	3,065
Structural shapes, plain material	7,428	11,623	49,288	59,709
Structural material, fabricated	2,830	3,035	20,098	17,185
Sheet piling	116	137	1,869	2,187
Tanks, steel	3,536	2,772	17,356	14,679
Steel rails	1,012	7,026	38,669	54,297
Rail fastenings, switches, spikes, etc.	657	1,202	5,611	8,308
Boiler tubes	1,295	1,078	8,856	6,326
Casing and oil line pipe	3,857	5,938	42,852	46,296
Pipe, black and galv., welded steel	1,831	3,354	10,986	20,089
Pipe, black and galv., welded iron	494	235	2,471	3,964
Plain and galvanized wire	4,465	4,591	21,128	28,353
Barbed wire and woven wire products	3,412	3,152	12,916	21,663
Wire rope and other products	885	1,900	5,379	7,881
Nails and tacks	2,017	2,257	10,510	13,380
Bolts, nuts, rivets and washers except track	604	1,019	4,136	5,940
Other finished steel	173	260	2,034	1,598
Rolled and finished steel	*103,198*	*163,789*	*720,366*	*895,086*
Cast iron pipe and fittings	2,418	1,846	11,720	18,047
Malleable iron screwed fittings	230	406	1,536	2,495
Carwheels and axles	3,561	1,446	12,238	8,123
Castings, iron and steel	533	626	3,238	6,554
Castings, alloy steel, incl. stainless	153	92	436	832
Forgings plain	640	532	4,038	3,080
Forgings, alloy steel, incl. stainless	25	36	237	424
Castings and forgings	*7,560*	*4,984*	*33,443*	*39,555*
Total	312,021	826,634	2,915,679	3,542,675

Imports (In Gross Tons)

	June		Six Months Ended June	
	1938	1937	1938	1937
Pig iron	900	7,541	20,365	59,865
Sponge iron	1	371	318	1,228
Ferromanganese[1]	793	3,418	5,069	17,252
Spiegeleisen	212	2,375	4,824	9,012
Ferrochrome[2]	34	15	71	216
Ferrosilicon[3]	27	586	278	1,285
Other ferroalloys[4]	...	....	1	52
Scrap	314	5,072	1,170	32,757
Pig iron, ferroalloys and scrap	*2,281*	*19,378*	*32,096*	*121,667*
Steel ingots, blooms, etc.	...	....	4	124
Billets, whether solid or hollow	32	215	377	1,089
Wire rods	327	1,044	2,520	8,319
Semi-finished steel	*359*	*1,259*	*2,901*	*9,532*
Concrete reinforcement bars	52	40	573	3,450
Hollow steel bars	9	230	429	1,375
Merchant steel bars	2,043	3,635	10,498	28,559
Iron slabs	....	.....	.....	1
Iron bars	27	233	311	1,159
Boiler and other plate (including skelp)	.....	23	110	199
Sheets, skelp and saw plate	381	684	5,175	7,855
Die blocks or blanks, etc.	29	18	64	73
Tin plate, taggers' tin and terneplate	3	47	30	152
Structural shapes	3,599	7,370	21,947	50,379
Sashs and frames	.....	.....	.....	.....
Sheet piling	.....	694	.....	1,762
Rails and track material	84	1,664	1,752	5,371
Welded pipe	622	855	2,436	5,659
Other pipe	1,930	2,008	12,764	14,546
Cotton ties	222	....	246	349
Other hoops and bands	1,806	2,674	9,689	15,627
Barbed wire	866	580	7,826	7,090
Round iron and steel wire	49	308	577	2,746
Telegraph and telephone wire	....	2	5	10
Flat wire and steel strips	154	350	1,350	1,855
Wire rope and strand	178	397	1,119	1,857
Other wire	160	734	822	2,381
Nails, tacks and staples	543	810	3,471	9,521
Bolts, nuts and rivets	21	18	81	264
Horse and mule shoes	68	23	215	157
Rolled and finished steel	*12,846*	*23,397*	*81,490*	*162,397*
Malleable iron pipe fittings	.....	37	37	242
Cast iron pipe and fittings	18	399	876	1,505
Castings and forgings	383	301	1,585	2,271
Total	15,887	44,771	118,985	297,614

[1] Manganese content. [2] Chrome content. [3] Silicon content. [4] Alloy content.

Iron-Steel Import and Export Values Down

EXPORTS of iron and steel products (excluding scrap) amounted to 149,944 tons, valued at $10,799,161, in comparison with 166,319 tons, valued at $10,899,772, in May, according to a preliminary report released by the Metals and Minerals Division of the Department of Commerce. These totals compare with an export trade of 309,897 tons, valued at $17,916,848 in June, 1937.

In the first six months of 1938, exported iron and steel products (excluding scrap) totaled 1,117,366 tons, compared with 1,370,575 tons in the corresponding period of 1937.

Japan led as an outlet for iron and steel shipments in June, its trade totaling 36,186 tons, against 49,747 in May and 96,259 in June, 1937. The principal items in this trade were pig iron, 23,377 tons; steel ingots, 6217 tons; wire rods, 3293 tons. Canada ranked next with 15,856 tons against 19,772 tons in May, and 38,494 tons in June, 1937. Products important in this trade were black sheets, 2840 tons; structural shapes, 2591 tons, and strip steel 1985 tons.

June Imports of Iron and Manganese Ores

(In Gross Tons)

	Iron Ore		Manganese Concentrates, 35 Per Cent or Over	
	1938	1937	1938	1937
Canada	121	....	....	....
Cuba	11,000	23,000	1,638	6,519
Chile	143,650	122,100	....	94
Spain	....	....	....	....
Norway	....	25,559	....	....
Sweden	15,571	14,578	....	....
French Africa	....	....	....	....
Russia	....	....	4,463	13,425
India	....	....	552	763
Brazil	....	....	....	3,679
Gold Coast	....	....	1,089	8,657
Other countries	....	12,898	....	....
Total	170,342	198,135	7,742	33,137

United States Imports of Pig Iron by Countries of Origin

(In Gross Tons)

	June		Six Months Ended June	
	1938	1937	1938	1937
United Kingdom	....	50	42	100
British India	500	6,810	10,159	34,684
Germany	....	....	....	510
Netherlands	100	....	5,462	15,065
Canada	100	381	1,164	3,850
France	....	....	....	....
Belgium	....	....	....	....
Norway	200	100	3,538	475
Sweden	....	200	....	600
Russia	....	....	....	4,581
All others	....	....	....	....
Total	900	7,541	20,365	59,865

THIS WEEK ON THE ASSEMBLY LINE

o o o

By W. F. SHERMAN
Detroit Editor

o o o

. . . Inventory slash of nearly $130,000,000 shown in General Motors and Chrysler reports . . . Retail sales tide to push forward plans for 1939 production in some cases . . . Steel buying expected daily in automobile industry . . . 250 buses ordered from General Motors Division.

DETROIT—The automobile industry is taking stock of itself with pleasing results and financial statements of two of the "Big Three," issued last week, furnish a statistical basis for asserting that the industry is in an extremely favorable position to progress through the next year on a highly profitable plane. Meanwhile, information from the sales field lends support to a resurrected hope for big volume production in the next few months.

Sharp reduction in profits is shown in the current statements of both General Motors and Chrysler Corp., with the net earnings of General Motors reduced to about 1/3 of the figure a year ago, and the net earnings of Chrysler cut to 1/5 of what they were in the comparable period of 1937.

Probably more important from the viewpoint of profits in the immediate future is the fact that inventories of General Motors Corp. products for sale have been reduced more than $100,000,000 since Jan. 1, while cash has been increased nearly that amount. Chrysler also has made drastic reduction in inventories amounting to between $26,000,000 and $27,000,000. Very careful production control and concentrated effort on sales are largely responsible for the reduction in inventory, and newly aroused customer enthusiasm, particularly near the end of the quarter, assisted almost phenomenally in inventory reduction.

Buying Move Starts

An unexpected flood of retail sales has, in some localities, practically cleaned out stocks of used cars and threatens to carry away the remaining stocks of 1938 models. Numerous observers note this condition.

Without a doubt it will spur production plans for 1939 models and get assembly line volume built up much more rapidly than was at first anticipated. It should also greatly improve the prospects for tonnage buying of steel in the Detroit area in the very immediate future. Reporting production for the last week at 30,390 units as against 32,070 the week before and 86,403 a year ago, Ward's Automotive Reports delve into statistics from the prairie states to show that a buying boom is on there. In the midwest block, including Kansas, Nebraska, Iowa, Oklahoma and others, retail sales are far outrunning those in other sections of the country. The section showed in June a decline of 23 per cent compared with last June, while the country as a whole is 56.59 per cent lower in retail sales than it was a year ago.

A gain of 32.7 per cent between this June and last year was registered in Kansas. It is the first and only state in any section of the country in 1938 to show an improvement over 1937 sales. With harvesting about to begin, the states which have already made the best comparative showing in

Ford, 75, Had Assembly Line Where Iron Age Assembly Line Is Written

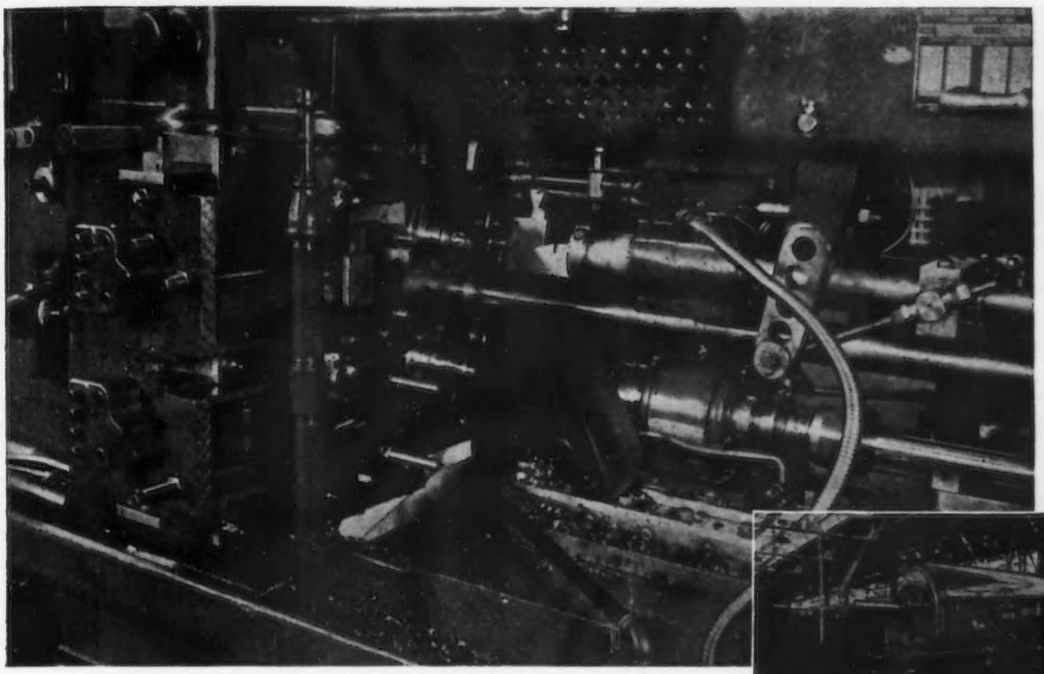
ON the occasion of Henry Ford's seventy-fifth birthday, the following is an interesting historic note.

Where THE IRON AGE "ASSEMBLY LINE" is written each week the Ford Motor Co. had one of its first assembly lines. The present Stormfeltz-Lovely Building in Detroit was built by Ford in 1912 and from 1912 to 1918 was known as the Detroit Branch of the Ford Motor Co. Assemblies of Ford Model T cars were carried on in this building at the rate of 125 cars a day.

The upper four stories of the building were used for the factory. Fenders and other sheet metal parts were assembled and enameled on the eighth floor, bodies were assembled, finished and stored on the sixth and seventh floors, the final assembly line was on the fifth floor. Engines and axles, manufactured at the Highland Park plant, were stored in the basement and carried by elevator to the fifth floor for assemblying the chassis.

The first and second floors were used for offices, records, car storage, tune-up service and sales. At that time Henry Ford had his own retail sales organization covering Detroit and Michigan territory out of the Detroit office. On the third floor, Ford owners could get their cars washed and polished and all of the exposed chassis parts painted black for $1.00. The fourth floor of the building was used for a repair shop.

In 1916, when Ford discontinued his own retail sales organization, all the members of the sales force were given the chance to become heads of Ford agencies. The last manufacturing and assemblying operations in the building were in 1918.



From BAR STOCK *to* Crank Gear Blanks in 45 Seconds!

ON A 3½" FOUR-SPINDLE CONOMATIC

Production of crank gear blanks in this plant is 80 pieces per hour — or one every 45 seconds — an excellent example of the speed with which a CONOMATIC handles the job assigned to it. In this case the work is being done on a 3½ inch 4 spindle machine in which exceptional strength and rigidity are combined with high productivity, accuracy and utmost dependability.

Every machine in the Cone line is modern in every detail — accessible for tooling — fast — economical — long lived. Cost cutting on a wide variety of work is assured because of the many sizes and types available. Conomatics and Cone Automatics are built in 9 sizes, in 4, 6, and 8 spindles. Screw machine parts up to 6" diameter and 7" milling length can be produced in quantity and at low cost on these modern, highly productive machines.

New Cone Catalogs will be sent promptly on request. As a production executive interested in cost-cutting, you should request your copies today.

CONE AUTOMATIC MACHINE CO. Windsor, Vt. U.S.A.

automobile purchases promise an early outpouring of "recovery" dollars.

Some Types Short

The unusual sales volume during the summer months, coupled with an already apparent shortage of used cars, may put automobile sales organizations in an awkward position during September and October. There is already a shortage of some body types in some companies, it is said. Plans for 1939 production are being speeded to avert a car shortage.

Despite these conditions, it seems impossible for any automobile company to make deliveries before the first of October, because, as far as is known, assembly lines will not be operating at normal speed before Sept. 1 and it takes at least a month to stock dealers.

In the case of Ford, the situation is a little different. When the Rouge resumes operations Aug. 15 it will produce 1938 models for exactly one month and during that time can, if necessary, produce 128,000 of the 1938 cars. The shutdown for 1939 model change-over will come Sept. 15 and dealers have been told that they will not have enough cars to launch a heavy campaign until considerable time after the closing of the automobile show in New York. It is probable that 1939 Fords will not be delivered until some date between Nov. 15 and Dec. 1, although this setup is subject to change if field conditions warrant quicker action.

Numerous plants have been closed for two weeks and in some of them production on parts is resumed this week. Assembly lines will begin moving pilot cars as early as Aug. 8—at Dodge, 50 pilot cars are tentatively scheduled for Aug. 8—while other lines will begin operations in the last two weeks of the month.

Reports on New Models

While competitors are keeping plans secret, it is generally anticipated that there will be many private and public showing of new models before the automobile shows, even though this practice was condemned a year ago as detrimental to selling because customers viewed the early cars, waited for the others to appear and let their enthusiasm cool.

New model "dope" is prevalent these days. It is now stated that the Ford 60 hp. car will be on a 106½-in. wheel base. The 116-in. car, previously reported here, will be, indeed, a "Baby Zephyr." The Ford, viewed from the front, will have louvers like eyes on each side of the center line down close to the bumper. There will be vertical fins spaced about an inch and a half apart.

A number of General Motors cars —it is impossible to say just how many—will have a novel, concealed hinge supporting the doors. The hinge consists of a rolled section of cold drawn steel which works in a stamping and is, one observer declares, "strong enough to support a barn door." Ternstedt Division of General Motors Corp. is manufacturing the parts.

Production probably will begin this month at the Trenton (N. J.) Ternstedt plant which has just been erected for the manufacture of automobile hardware. A million dollar plant for the production of automobile starters and generators was put into operation by General Motors early in July at Rochester, N. Y. Manufacturing operations were begun with a force of 200 workers. When the plant reaches full capacity it will employ 2500. Products will be shipped to assembly plants of General Motors at Buffalo, Tarrytown, Linden and Baltimore. Rochester already is the site of General Motors unit, the Delco Appliance Division. This plant employed about 1800 men last winter.

G-M Gets 100-Bus Order

Yellow Truck & Coach Mfg. Co., division of the General Motors Truck Corp., has received another sizeable order in addition to the 125 reported in this column last week. An order for 100 buses which will seat 60 persons and provide aisle space for 60 standees, has been placed by the Greyhound Lines which will operate on the Exposition Grounds for the New York World's Fair. Two of the coaches will be delivered in October for test purposes, 25 on March 1 for training personnel, and the remainder on April 1.

The new General Motors coaches will all be equipped with hydraulic torque converters combined with diesel engine power. This new transmission has been developed after five

THE BULL OF THE WOODS — BY J. R. WILLIAMS

years of experimental work, including two years during which such drives were used in commercial operations in New York and Chicago traffic.

For production of a new resin board, developed by Ford to be used as upholstery backing for the car body interiors, a building addition costing $300,000 with equipment, has been announced. The building addition will be made to the paper mill at the Rouge plant and will be 260 by 60 ft. The new equipment will increase the paper mill's capacity by about 40 per cent. It includes a paper board dryer 160 ft. long which is capable of drying binder board about four times as fast as any other machine of its type. A new 1825 ton hydraulic press, largest in the paper-making industry, also is being installed. It will heat the resin board to a temperature of 120 degrees.

Mallory Electric Down

Declaring that "a monopolized condition has practically eliminated every independent parts manufacturer from the field," the Mallory Electric Corp. was forced to lay off almost all its employees last week. A year ago April, the plant was in production 24 hours a day on ignition parts for automobiles and was nearing the end of a six-year research program on carburetion. The company was supplying Ford and Lincoln-Zephyr plants with ignition equipment and was an important factor in the replacement field.

"Due to the fact that we no longer have any original equipment business for our products," a Mallory announcement to its employees stated last week, "we must depend entirely on selling our merchandise to service stations and dealers, purely for replacement purposes. . . . Today there are only a few automobile manufacturers left in the field, who dominate their dealers and service stations in such a way that they cannot handle our products."

The condition of this parts company may not be entirely typical of the automobile parts business today, but observers in the industry agree that the condition mentioned in the Mallory statement does exist. The concentration of parts manufacture in the plants of the automobile builders has not only taken the business away from outside vendors in many cases, but has led the automobile manufacturers into the accessory business, and the supplying of all replacement parts.

Notes

One of the smallest machines used in the automobile industry, originally designed by plant engineers of the Packard Motor Car Co. for mechanically painting stripes on automobile bodies and wheels, has now been adapted to sealing metal edges at various points with a heavy layer of lacquer. Rust first develops at these points on a car and it was found that spray guns could not apply a sufficient amount of material to close the edges; brushes were not much better. The mechanical striper deposits a heavy layer of lacquer at important edges and might prove valuable in halting the march of rust on metal furniture and other products. * * * An order for 125 40-passenger single deck motor coaches, powered with diesel engines and having automatic hydraulic transmissions, has been received by the Yellow Truck & Coach Mfg. Co., Pontiac. Fifty of the buses are for the New York Omnibus Corp., 25 for the Fifth Avenue Coach Co. of New York and 50 for the Chicago Motor Coach Co. The diesel engines will be built by the General Motors Diesel division at Detroit. * * * Henry Ford's seventy-fifth birthday will be celebrated in Detroit and Dearborn with a public luncheon on Thursday of this week and an all-day community picnic and pageant, "The Progress of Dearborn."

o o o

LOW production costs in the automobile industry are contributions to the farm implement industry. Chrysler's "industrial engine" is being installed in the Massey-Harris Co., Inc., tractor, manufactured at Racine, Wis. About 280 demonstrations in the farm area will be given this week and next week.

o o o

TRADE NOTES

Pawtucket Mfg. Co., Pawtucket, R. I., announces it has added to its regular line of steel and brass bolts and nuts a full line of standard sizes of Herculoy bolts and nuts. Herculoy is a silicon-copper alloy manufactured by Revere Copper and Brass, Inc., 230 Park Avenue, New York.

Broderick & Bascom Rope Co., St. Louis, has purchased the Murray Safety Sling Co., Pittsburgh. Mr. D. Murray has sold his patents to the St. Louis company and will manage its new Murray Safety Sling Division factory at 33 Water Street, Pittsburgh.

Robinson Welding Supply Co., 1951 E. Ferry St., Detroit, established last year as exclusive distributers for Lincoln Electric Co. products, is handling additional lines of electric arc welding and cutting equipment. The Robinson company still is supplying Lincoln electrodes to the Detroit trade but has put in additional apparatus and supplies to enable it to serve more completely the job welding shops in the Detroit area.

J. Holland & Sons, Inc., machinery dealer, has opened new offices and showrooms at 274-278 South 9th Street at Broadway, Brooklyn, N. Y. Holland & Sons is distributer for American Pulley Co., DeVilbiss Co., Keystone Carbon Co., SKF Industries, M. R. C. Bearing Co., Fafnir Bearing Co., Electro Dynamic Motor Co. and Peerless Motor Co.

Metal Purchasing Co., Inc., on Aug. 1 occupied its newly constructed warehouse and office at 501-551 West 30th Street, New York.

Copper and Copper Alloys

REVERE COPPER & BRASS, INC., New York, has recently issued a pamphlet entitled "Copper and Copper Alloys" which is an abstract of an address made by M. G. Steele, technical advisor of the Baltimore division of the company, before the Baltimore Purchasing Agents' Association. This abstract is a brief summary of the important properties and typical industrial applications of 30 representative copper and copper base alloys.

THIS WEEK IN WASHINGTON

. . . Public Contracts Board decision on SWOC demand for freezing of steel wages expected in a month . . . Frank Purnell tells LaFollette Committee he opposes labor espionage . . . Nation in "desperate situation" in 1937 because of CIO, Republic official says.

o o o

By L. W. MOFFETT
Resident Washington Editor
The Iron Age

o o o

WASHINGTON.—Slowing its pace, the Public Contracts Board is expected to make findings and recommendations under the Walsh-Healey Act for common steel labor wage rates in about a month. This estimate was made by Chairman Thomas Holland of the board. He pointed out to THE IRON AGE, however, that the time required for making the report can be only approximated.

While the board and its staff are busily engaged in analyzing evidence given by steel and organized labor representatives at the two-day hearing last week, the board has complied with requests from the industry and granted six-day extensions for the filing of additional data and briefs. Notices were sent out last Friday by Administrator T. Metcalfe Walling that the period for the filing of additional wage data had been extended until Aug. 8 and that the date for the filing of briefs had been extended until Aug. 22 for both those present and not present at the hearing.

It was requested that statements to be filed show:

Name and address of the plant or plants
Total number of employees
Basic rate of pay to common labor
Number of common laborers being employed at basic rate
Number of employees receiving less than basic rate
Classification of work done by such employees

The report, with findings and recommendations, will first go to Administrator Walling, who will then file it with Secretary of Labor Frances Perkins. At her discretion the report may or may not be submitted to an affected industry and its employees in order that exceptions may be made and further data presented. This was done for the aircraft industry in its case wherein the board recommended a minimum wage of 60c. an hour.

Perkins Expected to Act

The Secretary of Labor may approve, modify or reject the findings and recommendations. Upon acceptance, she will issue an order establishing wage determinations. Because of SWOC pressure through the White House and the Secretary of Labor for quick action concern has been shown that Miss Perkins will issue the order soon after arriving at wage determinations. Ordinarily wages determined upon are ordered to be put into effect 10 days or two weeks after the notice is served. Taking into account the complexity of the steel wage problem and the procedure that must be followed in the case it apparently will be mid-September at the earliest before an order will become effective. Further delay of course would be encountered if steel interests succeeded in being granted more time for filing of data after recommendations are made.

There was the distinct impression at the outset that the case was going to be steam rollered and was only a formality prior to fixing of hourly wages and regions recommended by SWOC Chairman Philip Murray—62½c. in the East; 60c. in the West; and 45c. in the South. The impression was emphasized by remarks made by Chairman Holland in opening the hearings. He said that findings and recommendations would be made "within a few days."

As the proceedings progressed, however, O. R. Strackbein, a member of the board, took occasion to say that he was concerned over reports that the hearing was only "window dressing." Declaring that it was not "window dressing," he insisted that no action would be taken until full information was in and studied carefully. Mr. Holland also gave notice that additional time would be allowed for filing of supplemental data and briefs. He told THE IRON AGE that by "within a few days" he meant "around a month," but admitted the phrase was unfortunate.

Not a "Set-Up"

"I am anxious that the iron and steel industry should know that this proceeding is in no sense a 'set-up'," said Mr. Holland. "It will be considered from the beginning. All the material presented to the board will be carefully studied before findings and recommendations are made."

The SWOC group, evidently pushing for early decision because of fear that steel wage reductions would be made in the meantime, also seemed to share the concern that too precipitate action it originally sought might prove harmful to it. Apparently, like the board itself, it was impressed with vigorous protests by small steel companies that fixing of wages as demanded by Mr. Murray would destroy them. Some of them have SWOC contracts which recognize lower wage rates than those paid by the larger companies. Putting them out of business not only would increase the strength of the larger makers but also reduce the strength of SWOC, decrease employment of its members, and in effect nullify its own contracts. Likewise it would weaken SWOC's vaunted prestige in the industry and promote the strength of large independent steel companies which SWOC has been unable to organize. This point is particularly important since it is obvious that one of its outstanding purposes in instituting the wage hearing was to use it as a vehicle to attack these independent companies and ultimately to enforce recognition by them.

Smaller Companies Protest

Warnings of steel wage reductions or price increases, if not both, also served to impress upon both the board and apparently SWOC that the hearings

Reprinted by permission D. D. Berckheimer, 50 E. 41st St., N. Y. City.

were not to be taken lightly. While such a large independent producer as the Inland Steel Co. warned of wage reductions or price increases, the strongest protests came from the smaller companies, some of which indicated that not only are wage reductions inevitable but also price increases if they are to remain in business. Repeatedly complaint was made that the fixing of the wages proposed would destroy small manufacturers for whom the Administration has consistently affected anxiety for their welfare.

It is clear that the board realizes it faces a big problem in fixing steel wages. This was indicated by questions from members as to the practicability of fixing wage differentials as between the larger and smaller companies in given areas. This proposal was opposed and some steel attorneys said that the board had no authority to establish such differentials. It is evident that the board is as yet uncertain whether it does have this power.

Mr. Holland said that legal advice on the point would be asked of the solicitor of the Labor Department. The interest the board showed in this phase of the case led to the belief that it was considering the idea of fixing wage differentials as between large and small companies, possibly freezing them as they stand. Yet, it has been pointed out, this action, even if authority for it existed, would run counter to the Walsh-Healey principle of fixing rates on the basis of the "prevailing" wage. So far the board has never attempted to fix wage differentials as between large and small producers. Moreover, there has never been a definition of a "large" and a "small" manufacturer, and arriving at such a distinction might in itself prove to be a perplexing problem.

Ford a Steel Company?

The board also has two other outstanding problems before it. One relates to a definition of the iron and steel industry. The other is the determination of geographical regions. Tentatively the board has accepted, with the approval of steel manufacturers, the NRA code definition which includes those who make and sell all the products common to the industry from pig iron to finished lines. Both integrated and non-integrated companies are included. The SWOC wants to go further and include companies which make and consume their own steel, such as the International Harvester Co. and the Ford Motor Co.

William J. Kelly, president of Arthur J. O'Leary & Son Co., Chicago, and of the Machinery Allied Products Institute, said that the board's definition of the iron and steel industry was defective and urged a change. He asked for the addition of a qualifying clause to the effect that there shall not be included in the iron and steel industry blast furnace operations carried on as a part of the processes of production of the products included within another industry. Also he asked for a similar qualifying clause to the effect that there shall not be included the operation of open hearth or electric furnaces for the conversion of pig iron and scrap into steel when carried on by employers within another industry as a part of the production processes of the product of such other industry.

There is strong objection also to the Murray suggestion of dividing the industry into three rough geographical regions to replace the present established policy of dividing it into numerous districts and even into communities.

"I Just Don't Believe in Labor Espionage," Frank Purnell Says

WASHINGTON.—By testimony and through exhibits submitted to the Senate Civil Liberties Committee, a definite CIO move to prove that steel companies are attempting violations of the freedom of the press and the sanctity of the pulpit was seen this week as the La Follette committee swung into its fourth week of hearings. Coupled to the charges made two weeks ago when witnesses from the Republic Steel Corp. took the stand that the company had attempted to influence the press were the charges made last week that officials of the Youngstown Sheet & Tube Corp. allegedly had "coerced" the clergy into opposing the union.

FRANK PURNELL

By following this line of evidence, the committee was seen making one last build-up for its case against "little steel" before attempting to bring the hearings temporarily to a close by Friday of this week, after which Chairman La Follette expects to leave Washington on vacation.

Bargained Since 1918

Frank Purnell, president of the Youngstown Sheet & Tube Corp., told the committee that an erroneous impression was being given the country through the committee's proceedings and that his company had had collective bargaining since 1918. He testified, under questioning, that the company's labor policies had not been modified in 1933 after passage of the NRA Act containing the labor relations clause, Section 7-a, and that the general features of the company's bargaining plan, developed first in 1918, provided "a harmonious arrangement for discussions of common interest to employees and to the company."

Asked by Chairman La Follette if the company's employee representation plan was similar to plans adopted by other firms, Mr. Purnell listed two provisions which he said could be classified as "a little outstanding as exceptions" over the others. These were: (1) Any instances of discrim-

ination against a representative for his activities as a representative could be taken to the Secretary of Labor and the company would abide by the decision; and (2) on matters that could not be decided upon, the selection of a Federal Judge was to determine the final arbiter. He said it was his understanding that the employee representation plan was formally voted upon by the employees, from 80 to 90 per cent of the workers participating.

Evidence introduced by La Follette showed that Labor Board action under Section 7-a had been taken against the company, appealed in the courts, and subsequently dropped when the NRA Act was invalidated by the Supreme Court.

Additional evidence indicating that some $50,000 had been spent by the company in anticipation of a strike in 1934 which never materialized prompted Mr. Purnell to remind the committee that $10,000 of that had been necessary for insurance to protect the company's property against possible damage. He recalled, and submitted a photograph in substantiation, that a town adjacent to the Campbell plant (then East Youngstown) owned by Republic Iron & Steel Co. was swept by fire as a result of an unexpected strike in 1916. In view of this experience, Mr. Purnell said he thought it proper to have $50,000 worth of protection.

The witness testified that to his knowledge his company had not hired the services of any detective agency police force to engage in undercover activities or espionage since he became president. "I just don't believe in them," Mr. Purnell told the chairman. "I don't think they serve any useful purpose and I think they probably lead to more difficulties at times than good."

Vice-president C. M. White, of Republic, told Senator La Follette that the company regarded a CIO demand in March, 1937, for a union contract as the first step toward a closed shop to which, Mr. White said, Republic is opposed. Republic employees, Mr. White declared, were well satisfied with conditions as they existed and many expressed concern lest they would be "sold down the river" after announcement of the Carnegie-Illinois-CIO contract.

Denial was made by Mr. White that Republic officials had decided prior to collective bargaining that they would not sign a contract. Asked by the Senator whether he had the impression that other steel companies did not intend to sign, Mr. White said:

"No. Some were not sure they could successfully resist this drive. They talked of the money being spent by CIO—I believe it was about $1,000,000—and the fact that certain law enforcement officials seemed to favor CIO. It looked like a desperate situation for the country."

NLRB Invalidates AFL Contract Covering 1000

WASHINGTON.—The NLRB last week invalidated an AFL closed shop contract covering 1000 employees of the Serrick Corp., Muncie, Ind., and at the same time granted sole bargaining rights to the UAWU, CIO affiliate, with whom the company was ordered to deal exclusively. The Serrick Corp. was directed to rehire 18 workers allegedly discharged when they refused to join the Federation's International Association of Machinists and to end alleged efforts to encourage membership in the AFL union. The board's decision was unanimous and overruled the findings of its trial examiner. Joseph A. Padway, AFL counsel, said:

"One should not be amazed if in such a situation the order of the board will not be respected by employees whose guaranteed rights are trampled upon through biased decrees, thus encouraging war between the board and free American workers.

"There are some rights which workers legally possess and these rights are paramount to the edicts of the National Labor Relations Board. The American worker is not yet prepared to submit to enslavement by bureaucratic decree."

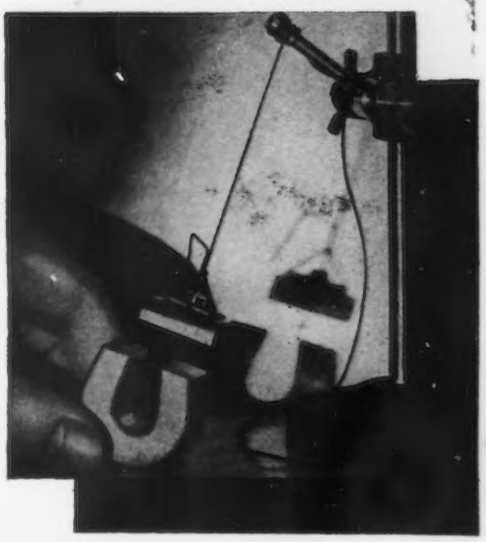
American Power Tool Signs FTC Stipulation

WASHINGTON.—The Federal Trade Commission has announced that the American Power Tool Corp., and Mrs. Ida Helen Kirkman, 181 Claremont Ave., New York, trading as the United States Tool & Machinery Co., have entered into a stipulation with the commission to cease representing that they manufacture power tools.

HIGH NICKEL ALLOYS

RAISE EFFICIENCY AND LOWER COSTS ...in scores of special applications

HIGH MAGNETIC QUALITIES... The magnet pictured here is small, but extraordinarily powerful—capable of lifting 60 times its own weight. This particular type, made of a new alloy rich in Nickel, is used for damping magnets in the polyphase meters of the Duncan Electric Co., Lafayette, Ind. Not only do these alloys of high Nickel content effect substantial savings in weight (in this case 80%) but they also have a higher permanency factor than other commercially available magnetic materials and are practically immune to the effects of magnetic disturbances caused by short circuits and lightning. Manufacturers who employ magnetic materials in their products will find these new alloys of Nickel profitable to investigate.



HIGH AND LOW EXPANSION PROPERTIES...

One of the most valuable metallurgical developments in recent years has been the production of thermostatic metals for operating automatic control devices. Pictured here is one employing a bi-metallic disc made of two alloys of Nickel, one having a high degree of expansion and the other low expansion properties. It guards the Westinghouse refrigerator motor, disconnecting it when it gets too hot and reconnecting it when it cools off. Principle upon which these thermostatic metals operate is based on a differential in the expansion properties of the two constituent metals. Changes in temperature cause them to deflect and this in turn acts on the control device. Alloys of Nickel can be produced for applications requiring extremely low expansions as well as for service where specific expansion characteristics may or may not be low.

IMPROVED PERMEABILITY... When you make your long distance telephone call or send a cable, a highly magnetic Nickel-Iron alloy of improved permeability containing up to 80% Nickel helps to deliver your message. Impulses sent over long circuits have a tendency to drag their "tails" behind them, upon which succeeding impulses tread. But through the use of loading coils made of a high Nickel alloy, and spaced at regular intervals along the circuit, transmission is speeded up and your words made intelligible. The high magnetic permeability of these alloys is also depended upon to increase the efficiency of submarine cables and various parts of radio, telephonic and telegraphic installations. We invite consultation on the use of the Nickel alloys in your equipment.

THE INTERNATIONAL NICKEL COMPANY, INC., NEW YORK, N.Y.

Bethlehem Profit Is $150,305 With Operations Averaging 36%

BETHLEHEM STEEL CORP. operated in the black in the second quarter by the small margin of $150,305, according to the earnings report made public by E. G. Grace, president of the corporation. In discussing the report, Mr. Grace expressed the opinion that there must be either an increase in prices or a reduction in labor costs in order to adjust the present unbalanced relationship between selling prices and production costs of steel.

The June quarter's net profit of $150,305 compares with $994,908 in the first quarter this year and $10,022,874 in the second quarter of last year. Net operating and other income, before interest and other charges, was $5,969,167 against $6,854,614 in the first quarter and $15,702,603 in the second quarter of 1937. The regular quarterly dividends of $1.75 on the seven per cent and 25c. on the five per cent preferred stock were approved by the directors for payment on Oct. 1.

Steel production by the corporation in the second quarter averaged 35.7 per cent of capacity, Mr. Grace stated, as compared with 36.4 per cent in the preceding three months, and 92.9 per cent in the first quarter of 1937. Current production is at 40 per cent of capacity, while incoming orders are running at about 37 per cent of capacity, he said.

Discussing the recent basing point changes and the price reductions, Mr. Grace said that he had noticed no change whatsoever in Bethlehem's operations that could be attributed to these factors. The effects of the price reductions, he pointed out, will not be apparent until the report of the third quarter earnings is available.

When asked if he contemplated wage adjustments in the near future, Mr. Grace declared that the question of wages had not been discussed with the corporation's employees.

Fairbanks-Morse Awarded $567,611 U. S. Navy Contract

WASHINGTON. — The Navy Department has awarded a $567,611 contract to Fairbanks-Morse & Co., Chicago, for construction of two sets of diesel propelling machinery to be used to power two mine sweepers allocated to the Norfolk Navy Yard. The Busch-Sulzer Bros. Diesel Engine Co., St. Louis had bid $875,000 and the American Locomotive Co., Auburn, N. Y., $875,000.

Farm Implement Exports Up 21% in First Six Months

WASHINGTON.—Farm implement exports for the first six months of 1938 totaled $41,809,923, a 21 per cent increase over the corresponding period in 1937, the Commerce Department reports.

Harvesting machinery exports scored the largest increase over the comparable period of 1937 and amounted to $4,658,713, a 110 per cent increase. Exports of tractor parts and accessories valued at $4,964,854 represented a 21 per cent increase over the comparable six-month period in 1937.

The department reported, however, that the total shipments abroad of all types of farm equipment during June were slightly lower than a year ago, dropping from $7,188,220 to $7,042,941. Shipments of tractors and parts were down 12 per cent and wheel tractors 17 per cent. But harvesting machinery exports for June, 1938, were up three and one-half times over the June, 1937, shipments.

Lincoln Foundation Award Jury in Session

JUDGING of papers submitted in the $200,000 award program of the James F. Lincoln Arc Welding Foundation is in progress at Cornell University, Ithaca, N. Y. The jury of award, made up of 30 members from the engineering departments of 12 colleges and universities, will judge the entries under the direction of Dr. E. E. Dreese, Ohio State University, chairman of the jury of award. To assist in properly appraising the merits of any paper, the jury will consult experts or outstanding authorities in the various classifications of the award program. The jury will remain at Ithaca until it completes the selection of the winning papers. It is expected that the announcement of award winners will be made about the middle of September.

Secretary Perkins Dominating Figure In Wage-Hour Set-Up

WASHINGTON.—Secretary of Labor Frances Perkins has emerged as the dominant figure in the new wage-hour setup despite Congressional stipulation that the new agency be created under but remain independent of the Department of Labor.

Miss Perkins, who has gained a reputation during her five years in Washington for aggresive action in behalf of her department and for simultaneously arousing the wrath of labor, industrial and Administration leaders, conferred at length in New York with Elmer F. Andrews, the new wage-hour administrator, before returning to Washington where she told reporters some of the preliminary plans of the new agency.

Mr. Andrews' former affiliation with Miss Perkins in the New York Labor Department has prompted reports that he is a Perkins appointee.

AFL May Oppose

Her remarks, during which she persistently referred to what "we" plan to do, created the impression that she expects to take a prominent place in the wage-hour picture, thus stirring speculation as to whether the AFL will push for revision of the law at the next session of Congress to isolate the set-up from the Department of Labor.

At the October conference of both federal and state labor officials, an annual event attended by governors and other state representatives and held at the Labor Department in Washington, Miss Perkins is expected to bring up the subject of adopting state minimum wage laws patterned after the federal statute.

The Labor Secretary also revealed that the wage-hour administrator will clarify overlapping functions between the new bureau and the Walsh-Healey Board, which is currently attempting to fix Government wage standards for the steel industry.

On other subjects Miss Perkins would not commit herself. Asked if she thought there would be any wage reductions in the steel industry, the Labor Secretary asserted she "wouldn't like to say."

Americans to Pay Fine on Excess of Tin Plate Exports

LONDON (By Mail).—The International Tinplate Cartel agreement was extended for another three years at the annual conference of the International Tinplate Association held at Baden-Baden early in July. The agreement was also extended to embrace certain countries hitherto outside the Cartel and it is understood that all now outside the agreement will be invited to join.

A few weeks ago agreement was reached in Rome for a renewal of the pact, when it was announced that American producers were to be granted a quota increase of 2½ per cent, the cost of which would be borne by the other members. On the other hand, the Americans agreed to pay a fine for exceeding their quota during the past year.

A.S.M.E. Forms Committee On Rubber and Plastics

THE American Society of Mechanical Engineers has established a committee on rubber and plastics which will deal with several phases of these products including mechanical applications, research on basic mechanical properties, processing equipment, and standards.

Four papers covering the history of rubber, synthetic substances with rubber-like properties, fabrication of rubber parts, and certain mechanical properties of rubber are included in the program of the next meeting of the society to be held at Providence, R. I., October 5-7. Authors of papers believed suitable for presentation at subsequent quarterly meetings should communicate at least four months in advance with Dr. J. F. Smith, Edward G. Budd Mfg. Co., 25th Street and Hunting Park Avenue, Philadelphia, secretary of the rubber and plastics committee; or with the chairman, Dr. F. L. Yerzley, E. I. du Pont de Nemours & Co., Inc., P. O. Box 525, Wilmington, Del.

Tanks to House Petroleum Exhibits at World's Fair

FOUR semi-circular forms, designed to represent oil-storage tanks, will house exhibits in the Petroleum Building being built for the World's Fair. Foundation work for the building is nearly complete. Approximately 600 tons of steel required will be delivered in early August by Bethlehem Steel Corp., according to an announcement by Thomas H. Taylor, president of Petroleum Industry Exhibition, Inc. Fourteen leading oil companies are participating in the exhibit.

June Lead Exports From U. S. Doubled

EXPORTS of lead and lead products from the United States in June, valued at $442,497, were nearly double the $231,054 trade of June, 1937. Preliminary figures released by the Metals and Minerals Division of the Bureau of Foreign and Domestic Commerce also reflect the strong position of this trade as compared with the $514,408 shipments of May. Imports, at $86,005, were only fractionally as large as in May when this trade had been valued at $139,595 and topped the June, 1937, trade of $83,990.

Coast World's Fair Order Goes To G-E

GENERAL ELECTRIC CO., Lynn, Mass., plant has been awarded a contract for the entire illumination equipment for the Golden Gate World's Fair at San Francisco. The order includes 9000 flood lights, one of the largest such orders ever placed, 2300 tubular fluorescent lamps, and a number of transformers, totaling about $170,000. Deliveries are to be on or before Sept. 1, next.

Resistance Welders Study Specification Revisions

OFFICIALS of the Resistance Welder Manufacturers Association report progress at their meeting at the Recess Club, Detroit, Thursday, July 14, on revision of the association's standard transformer specifications.

The specifications are to be completely rewritten and submitted to members of the association at their next meeting on Sept. 14.

Ryan Wins $100,000 Contract For War Plane Equipment

SAN DIEGO.—Another $100,000 contract for exhaust manifold equipment of stainless steel for British military planes has been placed with the Ryan Aeronautical Co. It calls for 500 stainless steel collector ring assemblies to be produced by the specialized method developed by the Ryan company. A recent similar order was placed with Ryan for manifolds to be installed on United States army bombers.

The contract manufacturing division of Ryan is in production on the largest volume basis in its history and has the greatest back-log of business in its history.

Steel Payrolls Hold Steady During June

DESPITE a drop of 9.5 per cent in ingot output, a total of $46,706,000 in steel payrolls was disbursed during June, compared with $46,757,000 in May, the American Iron and Steel Institute reports. In June, 1937, steel payrolls amounted to $87,520,000.

Number of employees in the industry during June totalled 425,000, as against 436,000 in May and 556,000 in June, 1937.

Wage-earning employees of the industry earned an average of 84.5 cents per hour in June, which compares with 83.6 cents in May and 87.0 cents in June, 1937.

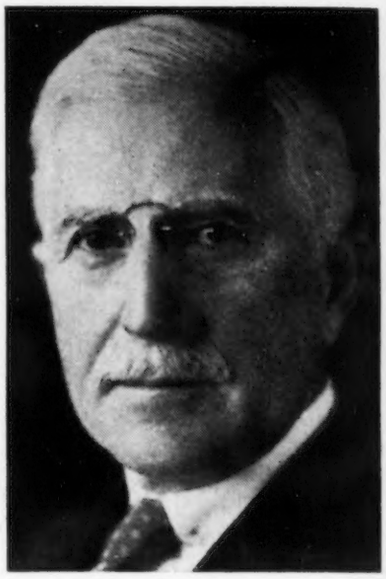
An average of 25.6 hours per week was worked by wage earners during June, as against 24.4 hours in May and 39.2 hours in June of last year.

The above table compares steel employment, hourly earning and payroll data for May and June of this year with June, 1937.

	June, 1938	May, 1938	June, 1937
Total Number Employees	425,000	436,000	556,000
Total Payrolls	$46,706,000	$46,757,000	$87,520,000
Avge. Hourly Earnings, Wage Earners	84.5c.	83.6c.	87.0c.
Avge. Hours per Week, Wage Earners	25.6	24.4	39.2

15,000 Honor G. M. Verity At Parkway Dedication

MIDDLETOWN, Ohio.—Fifteen thousand persons witnessed a parade and program which dedicated the new lighting system of Verity Parkway, a super-highway named in honor of George M. Verity, founder and chairman of the American Rolling Mill Co., here, on July 30.


G. M. VERITY

More than 2000 marchers, representing civic, religious, fraternal, military, and service organizations of the city and nearby communities and many industrial groups took part in the long parade which lasted one hour and a quarter.

A. O. Smith Corp. Receives Standard Oil Co. Order

MILWAUKEE.—A. O. Smith Corp. has received an order from Standard Oil Co. of New Jersey for eight large oil refinery vessels for delivery to Aruba, Dutch West Indies. Four vessels are known as separator towers and measure 85 ft. in length and 10 ft. in diameter; the other four are known as bubble towers and measure 35 feet in length and 11 ft. in diameter. All will be lined with A. O. Smith corrosion resistant alloys.

American Forging & Socket Co., maker of automobile body hardware, Pontiac, Mich., has declared a dividend of 12.5c. a share.

..PERSONALS..

J. L. SHAKLEY has been elected president of the Frick-Reid Supply Corp., a subsidiary of Jones & Laughlin Steel Corp., with headquarters in Tulsa, Okla. Mr. Shakley succeeds WILLIAM M. PATTERSON, who will become vice-president in charge of Frick-Reid's Eastern division, with headquarters in Pittsburgh.

ROBERT McCOY, JR., has been made a vice-president, with headquarters in

J. L. SHAKLEY

Tulsa. He formerly was sales manager of the Western division.

R. T. FRICK has been made district sales manager for western Pennsylvania, West Virginia and Ohio. W. H. WEIS, formerly auditor of the supply corporation, has been made secretary and treasurer and H. H. WILSON has been appointed sales manager, with headquarters in Tulsa.

❖ ❖ ❖

ROBERT J. DAVIS has been elected president and general manager of the Johnston & Jennings Co., Cleveland, to succeed TRACY J. CALHOUN, who has been elected board chairman. Mr. Davis, who has been a director of the company for more than two years and has for many years been engaged in manufacture and sales of various products, is a grandson of the late Robert Johnston, one of the founders of the machinery and forging company in 1884.

❖ ❖ ❖

WILLIAM W. BOND, who has been identified with the Link-Belt Co., Chicago, since 1911, has been appointed Western sales manager of the positive drive division, with headquarters at the Dodge plant, Indianapolis. He succeeds the late G. Howard Buckholder. RALPH S. DYSON, for many years manager of stock silent and roller chain drives through distributers, will also be in charge of roller chain drive sales to duplicate machinery manufacturers. He entered the company employ in 1899.

❖ ❖ ❖

PHILIP NORMAN has been named chief purchasing agent for the Michigan Tool Co., 7171 East McNichols Road, Detroit. He has been with the company's purchasing department for four years and succeeds the late Harry A. Duffey, who died June 29.

❖ ❖ ❖

RALPH DOEG, an experimental engineer in the Kelvinator plant for 13 years, has been named master mechanic of the Kelvinator division of the Nash-Kelvinator Corp., succeeding J. D. THOMPSON, who now is with the Apex Mfg. Co., Cleveland.

❖ ❖ ❖

EARL H. SMITH, assistant chief engineer of the Packard Motor Car Co.,

has assumed the duties vacated by EDWIN H. JOHNSON, who recently joined the Crane Co. in Chicago as master mechanic.

❖ ❖ ❖

BENJAMIN SCHWARTZ, whose resignation as director general of the Institute of Scrap Iron and Steel was announced in these columns on July 14, will become vice-president of Schiavone-Bonomo Corp., New York, on Aug. 15. He will serve the corporation in connection with legal, industrial, labor and public relations. His active interest in the trade association will continue as representative of the company in the Institute.

❖ ❖ ❖

A. H. GAESS, engineering and cold forging specialist of Waterbury, Conn., is now executive sales representative for the B-W header attachment in New England and eastern New York, and northern New Jersey. The announcement was made this week by J. C. WILKIE, president of the B-W Mfg. Co., Detroit. A veteran designer of automatic metal fabricating machinery, Mr. Gaess at one time was connected with Chase Copper & Brass Co. and Scovill Mfg. Co., and was for 25 years a designer with the E. J. Manville Machine Co., where he was chief engineer from 1913 to 1926, then until 1936 in charge of sales engineering.

❖ ❖ ❖

ELMER E. ERICKSON has been appointed manager of the bureau of sales statistics, Carnegie-Illinois Steel Corp., Pittsburgh. Mr. Erickson has been associated with subsidiaries of U. S. Steel Corp. since 1918 and was formerly assistant manager of the bureau of sales statistics.

A. H. GAESS

❖ ❖ ❖

HARRY K. BECHT, superintendent of blast furnaces at the Farrell, Pa., plant of Carnegie-Illinois Steel Corp. since 1909, has announced his retirement. PHILLIP E. ANGLE, assistant superintendent of blast furnaces at Duquesne, has been appointed to succeed Mr. Becht. CHARLES H. JAXTHEIMER, assistant superintendent of blast furnaces at the Farrell plant, will be transferred in a few weeks to a similar position at the Edgar Thomson works, Duquesne, Pa.

❖ ❖ ❖

LUDWIG EMDE has been made Detroit district sales manager by the Worthington Pump & Machinery

Corp., Harrison, N. J., succeeding WILLIAM J. DALY, recently transferred to the Philadelphia office as manager. Mr. Emde has been a member of the Worthington organization since his graduation from the University of Michigan in 1930.

❖ ❖ ❖

EDWARD S. COE, JR., for the past several years identified with the sales engineering department of the Buffalo plant of the Farrel-Birmingham Co., Inc., Ansonia, Conn., has been assigned to the Chicago area in connection with the sale of herringbone gears and gear units. After graduation from

C. M. PETER, whose appointment as general sales manager of the Fellows Gear Shaper Co., Springfield, Vt., was announced in these columns last week.

Worcester Polytechnic Institute in 1931 he was associated successively with the American Steel & Wire Co., and Reed-Prentice Co.

❖ ❖ ❖

HOMER KENDALL, formerly associated with the Alliance Machine Co., has been appointed to handle special engineering problems in sales work with the Salem Engineering Co., Salem, Ohio.

❖ ❖ ❖

WILLIAM S. CARLETON, manager of the Eastern division of the Hewitt Rubber Corp., Buffalo, and LESTER D. BIGELOW, manager of the company's Western division, have been elected vice-presidents of the Company. JOSEPH H. HAYDEN, secretary of the company, has been elected a member of the board.

CHARLES F. PEACE has been appointed representative in Maryland, with office at 229 South Howard Street, Baltimore, by General Alloys Co., Boston. T. SPENCER WILLIAMSON, JR., has been made representative in Virginia, with headquarters in the Mutual Building, Richmond.

❖ ❖ ❖

C. J. PIMSNER, vice-president of Morrison Engineering Co., Inc., Cleveland, has been transferred to Chicago to take over the management of the newly established district office in that territory. Mr. Pimsner has gained a broad experience covering approximately 17 years in design and sale of industrial ovens.

❖ ❖ ❖

W. I. METZGER has been appointed controller for the Jadson Motor Products Co., Los Angeles.

❖ ❖ ❖

KARL BROCKEN, noted designer in the automobile body industry, has be-

come an associate designer in the organization of Brooks Stevens, 340 North Milwaukee Street, Milwaukee, which covers a wide field in industrial, automotive and household appliance designing. Mr. Brocken participated in the designing of Duesenberg, Cord, Auburn and Hudson passenger cars, and more recently was consultant designer with the Briggs Mfg. Co., Detroit, on new models of Lincoln, Ford, Chrysler, DeSoto and Plymouth automobiles.

❖ ❖ ❖

RALPH NOLAN has been appointed representative of Continental Roll & Steel Foundry Co.'s furnace division in the southern district, with offices in the Citizens & Southern National Bank Building, Atlanta. He will handle sales of industrial combustion equipment and allied furnace accessories.

❖ ❖ ❖

ROBERT E. BROWN has been appointed representative in the Pittsburgh district for the Ohio Electric Mfg. Co., Cleveland. He will make his headquarters at 311 Ross Street, Pittsburgh.

❖ ❖ ❖

CARL ZAPFFE, JR., has been appointed a research associate at Battelle Memorial Institute. He has been assigned to an investigation of the solubility of oxides in liquid iron and steel. Mr. Zapffe is a graduate of Michigan College of Mining and Technology and of Lehigh University, and recently fulfilled the requirements of Harvard University for the degree of D.S. He was previously employed for two years in the metallurgical division of E. I. du Pont de Nemours & Co.

Federal Fabricating Co. Organized in Ohio

YOUNGSTOWN. — The Federal Fabricating Co. recently organized to engage in metal stamping and fabricating is preparing to move into a plant at Mineral Ridge, Ohio. About 40 workmen will be employed at the outset. John Clark of New Cumberlan, W. Va., is general manager of the company; T. C. Kincaid, Steubenville, Ohio, is sales manager and J. E. Sweringen of Steubenville is office manager.

CORRECTION

BECAUSE of a typographical error in THE IRON AGE market summary of July 28, the price of tin plate at Pittsburgh and Gary, Ind., was incorrectly carried at $5.25 per base box. This quotation should have been $5.35 per base box.

....PIPE LINES....

Columbia Gas & Electric Corp., 61 Broadway, New York, and Panhandle Eastern Pipe Line Co., 101 West Eleventh Street, Kansas City, Mo., plan joint construction of welded steel pipe line from Detroit terminus of present main pipe line from Panhandle gas field in Texas, to Ann Arbor and Pontiac, Mich., for natural gas transmission for distribution in those municipalities; also a connecting welded steel pipe line to Flint, Mich., and vicinity, and branch lines to Kalamazoo, Jackson and other communities in that part of Michigan. Project will be carried out in cooperation with natural gas utility interests operating in Michigan gas field districts, with later construction of a welded steel pipe line loop connecting the two sources of supply, with Michigan fields furnishing service in Saginaw and Bay City areas, as well as in Muskegon and Grand Rapids districts. Cost about $5,000,000 with booster stations and other operating facilities. State Public Utilities Commission, Lansing, Mich., has appointed a committee headed by Charles S. Porritt to investigate proposals and make recommendations for authority to proceed with projects.

Continental Oil Co., 60 East Forty-second Street, New York, and Ponca City, Okla., has let contract to S. D. Bechtel Co., and Osage Construction Co., both Ponca City, for welded steel pipe line from Lance Creek, Wyo., oil field to Denver, for crude oil transmission to refinery at latter place, 232 miles total. Bechtel company will build an 8-in. line from Lance Creek to Cheyenne, Wyo., 136 miles, where pumping plant and control station will be located; Osage company will build a 6-in. welded steel pipe line from Cheyenne to Denver, 96 miles. Cost about $2,750,000 with booster pumping stations and other operating facilities.

Dawson, Ga., plans municipal pipe line distributing system for gas supply, with control station and operating facilities. Surveys have been authorized. Cost about $60,000. Financing will be arranged through Federal aid.

Union Oil Co. of California, Los Angeles, has awarded contract to Pacific Crane & Rigging Co., 6800 South Alameda Street, for construction of 6-in. steel pipe line in Figueroa Street, between Sepulveda and Lomita Boulevards, about 3800 lin. ft., for oil transmission.

Stockdale, Tex., plans steel pipe line system for municipal gas distribution. Cost about $40,000. Financing is being arranged through Federal aid. J. W. Beretta Engineers, Inc., National Bank of Commerce Building, San Antonio, Tex., is consulting engineer.

General Purchasing Officer, Panama Canal, Washington, asks bids until Aug. 11 for steel pipe fittings (Schedule 3373).

Bethlehem Steel Co., Seattle, Wash., has been awarded 100 tons of wrought steel pipe by the contractor for Madison Point Housing project.

Procurement Division, Public Buildings branch, Washington, will open bids Aug. 11 for submarine water pipe line between Fort Mason, San Francisco and Alcatraz Island. 225 tons, involving 10,000-ft. of 8⅝-in. special wrapped and cement lined wrought steel pipe.

Procurement Division, Public Buildings branch, Washington, asks bids Aug. 11 for construction of a pipe line between San Francisco shore line and Alcatraz Island.

Hartford, Conn., has awarded 3000 ft. of 42-in. pipe for a Metropolitan District supply main to Lock Joint Pipe Co., Ampere, N. J.

Simrall Pipe Line Corp., Mount Pleasant, Mich., affiliated with Standard Oil Co. of Ohio, Midland Building, Cleveland, plans welded steel pipe line from oil field in Allegan County, Mich., to connection with main pipe line from Mount Pleasant to Toledo, Ohio, for crude oil transmission.

New Designs in Portable Electric Tools

(CONTINUED FROM PAGE 38)

Tool Division, New Britain, Conn., it has a 6-in. blade and cuts to a depth of 1⅞ in. Only one adjustment is necessary to regulate the depth of cut. It is fully equipped with Stanley safety features.

ESPECIALLY adaptable for light crating jobs is the No. 35 electric trim saw made by *Van Dorn Electric Tool Co.* It has a 5-in. saw, rotating at 2800 r.p.m. at full load and cutting to a depth of 1⅜ in. Standard equipment includes two-pole instant release switch, adjustable saw table, detachable ripping fence, combination cross-cut and rip blade and carrying case. Motor is a universal type.

Screw Drivers

FLEXIBLE shaft units for screw driving and nut setting are offered by *Stow Mfg. Co., Inc.,* Binghamton, N. Y., with the motor assembly mounted on a heavy caster base or suspended from the ceiling. In either design, a counterbalanced swivel arm allows the operator to cover a large area and also eliminates the weight of shaft from the operators hand. The screw driver handpiece operates with a positive clutch which is in engagement only when the screw driver blade is in contact with the screw. Tension is regulated by tightening the belt. Screw driver blades and hollow wrenches are interchangeable in the same handpiece. When desired, the machine can be furnished with special pulleys to give higher speeds for grinding and polishing.

Balancer for Large Tools

THE *Independent Pneumatic Tool Co.,* 600 W. Jackson Boulevard, Chicago, has announced the Thor torque-arm balancer, a device for suspending large, powerful electric and pneumatic drills and other tools above the work location. It is made with a range of travel of 3 to 6 ft. and a load capacity from 45 to 100 lb. The device is adjusted to balance the tool at working level and besides supporting the tool, also absorbs the torque and eliminates the danger of injury, should the tool "stick."

When not in use, the balancer is raised to top position, where it locks automatically. The torque arm telescopes to allow the minimum head room when closed, yet allow the maximum amount of travel when open. It is attached to the load frame in a rocking bracket that permits the tool to be swung backward or forward and to either side.

Open-Hearth Charging Device Electrified

WELLMAN ENGINEERING CO., Cleveland, has announced the acquisition of a license under Ferdinand H. H. Foss United States Patent No. 2,120,202, granted June 7, 1938, on an electric lock-rod operating device for open hearth charging machines, the use of which will eliminate manual operation of charging box locking rods heretofore used. Three 12-ton open hearth charging machines recently completed by Wellman are each equipped with this device.

Industry's Earnings Drop in 2nd Quarter

EARNINGS reports issued this past week continued to reflect the low demand in the second three months of 1938 for most of the products of industry. The statements gained significance in the light of recently reduced steel prices. Among the latest companies reporting for the quarter ended June 30, 1938, (losses shown by *) were:

	1938	1937
Republic Steel Corp.	$2,865,317*	$487,251
Jones & Laughlin Steel Corp.	1,654,303*	2,451,976
Inland Steel Co.	1,135,097	3,178,383
Wheeling Steel Corp.	624,888*	2,463,034
Midland Steel Products Co.	162,815	654,575
American Rolling Mill Co.	525,853*	4,321,854
Rustless Iron & Steel Corp.	33,683*	203,909
Pressed Steel Car Co.	356,691*	218,653
Bridgeport Brass Co.	111,150*	349,295
Superior Steel Corp.	121,290*	120,648
Allis-Chalmers Mfg. Co.	1,475,410	2,636,850
Doehler Die Casting Co.	29,553	325,005
Continental Roll & Steel Foundry Co. (6 mo.)	39,041*	560,476
Campbell, Wyant & Cannon Foundry Co. (6 mo.)	168,471*	668,662
Mullins Mfg. Co.	317,955*	357,507
Bucyrus-Erie Co. (6 mo.)	362,883	601,761
Aetna Ball Bearing Mfg. Co. (6 mo.)	10,045	154,736
M. A. Hanna Co.	163,038	896,418

Wilbur B. Driver Co. Starts New Hot Mill

WILBUR B. DRIVER, president of Wilbur B. Driver Co., surrounded by a group of plant executives, pressed a button that set in operation on July 13 a new hot rolling mill in the Driver company's plant at Newark, N. J. The new mill produces a wide range of flats, special shapes, and a variety of sizes in round rods.

U. S. Buys $554,617 Of Steel Products in Week

WASHINGTON. — The Walsh-Healey Government Contracts Board announced last week that contracts totaling $554,617.35 for iron and steel products were awarded by various Government agencies during the week ending July 28.

Bethlehem Steel Co., Bethlehem, Pa., received the largest order, covering $292,110 worth of forgings for the Navy. The Interior Steel Equipment Co., Cleveland, was next with a $75,000 order for post office furniture. Among the other companies receiving contracts were the Parent Metal Products, Inc., Philadelphia, $60,816, and the Gibraltar Mausoleum Co., Lansdale, Pa., a $29,000 contract, both for post office furniture; the Duffin Iron Co., Chicago, a $20,250 contract for supplying the Interior Department with bridge steel; Sterling Steel Casting Co., E. St. Louis, Ill., $16,971.50 covering steel castings for the War Department; and Republic Steel Corp., Massillon, Ohio, $15,564.74 for steel sheet plate and strip for the Navy Department.

AFL Warns Against Steel Wage Slash

WASHINGTON. — The American Federation of Labor, reporting in its monthly labor survey of 24 cities that June employment increased by 7000 and that signs of business improvement continued well into July, recalled early this week that a rise in steel operations always adds impetus to business revival but warned that "wage cutting at the present time is against the public interest."

"It is significant," the federation said, "that although business activity fell back to within 18 per cent of the lowest depression level, workers' income has fallen far less and at its lowest 1938 point was still 53 per cent higher than its depression bottom."

. . .THE NEWS IN BRIEF. . .

Unexpectedly heavy inventory reductions (about $130,000,000) for General Motors and Chrysler, and a summer rise in automobile sales, clear the way for recovery at Detroit. Kansas becomes first state with 1938 sales topping 1937. Page 46.

Steel wages cut up to 25 per cent by Mid-West producer, with 700 men affected, a step expected to bring to a head the dispute as to whether a general wage reduction will go into effect for the steel industry. Page 75.

Fifty years ago the D. O. James Machine Co. was founded; today known as the D. O. James Mfg. Co., Chicago, are celebrating their business birthday.—**Page 41.**

Court voids NLRB ruling on Fansteel Metallurgical Corp.—not to reinstate 92 persons for conducting a sitdown strike in the plant in February.—**Page 41.**

A new pamphlet entitled "Copper and Copper Alloys" issued by Revere Copper and Brass, Inc. —**Page 49.**

Ruling by Public Contracts Board on SWOC appeal for freezing of steel wages rates expected "in about a month," following strong protests by small producers that fixing of pay levels would drive them out of business.—**Page 50.**

Bethlehem profit is $150,305 with operations averaging 36 per cent.—**Page 56.**

Farm implement exports for the first six months of 1938 totaled $41,809,923, a 21 per cent increase over the like period of 1937, the Commerce Department reports. — **Page 56.**

Judging of papers submitted in the James F. Lincoln Arc Welding Foundation $200,000 award program is in progress at Cornell University.—**Page 56.**

Secretary Perkins dominating figure in wage-hour set-up.—**Page 57.**

Lead exports from United States doubled in June.—**Page 58.**

Four semi-circular forms designed to represent oil storage tanks will house the exhibits for the petroleum industry at the World's Fair.—**Page 58.**

The American Society of Mechanical Engineers establishes a committee on rubber and plastics.—**Page 58.**

Ryan Aeronautical Co. awarded $100,000 contract for stainless steel exhaust manifold equipment to be used in British war planes.—**Page 59.**

Steel industry payrolls show slight decline during June, although ingot production dropped 9.5 per cent. Earnings average 84c. hourly with average work week above 25 hr.—**Page 59.**

Americans to pay fine on excess of tin plate exports.—**Page 58.**

Resistance Welders study specifications revisions.—**Page 59.**

A. O. Smith Corp. receives Standard Oil Co. order.—**Page 60.**

Fifteen thousand persons witnessed a parade and program at Middletown, Ohio, honoring George M. Verity, American Rolling Mill Co. chairman.—**Page 60.**

Federal Fabricating Co. organized in Ohio.—**Page 64.**

Iron-steel imports and exports values down.—**Page 76.**

Industrial machinery exports from the United States up 16 per cent during June.—**Page 93.**

Foreign machine tool outlook improved, says Fred H. Chapin, president, National Acme Co., Cleveland.—**Page 93.**

Wilbur B. Driver, president of the company bearing his name, presses a button which sets in operation a new hot rolling mill at Newark, N. J.—**Page 67.**

Public Contracts Board at Washington announces orders for $554,617 of iron and steel products were placed by various Government agencies during the week ended July 28.—**Page 67.**

American Federation of Labor, reporting an increase in employment during June, recalls that a rise in steel operations always adds impetus to business revival and warns that "wage cutting at the present time is against the public interest."—**Page 67.**

Earnings reports issued this past week continue to reflect the low demand in the second quarter of 1938 for most of the products of industry.—**Page 67.**

CONVENTIONS

Sept. 26 to 30—Association of Iron and Steel Engineers, Cleveland.

Oct. 10 to 14—American Institute of Steel Construction, French Lick Springs, Ind.

Oct. 12 to 15—The Electrochemical Society, Rochester, N. Y.

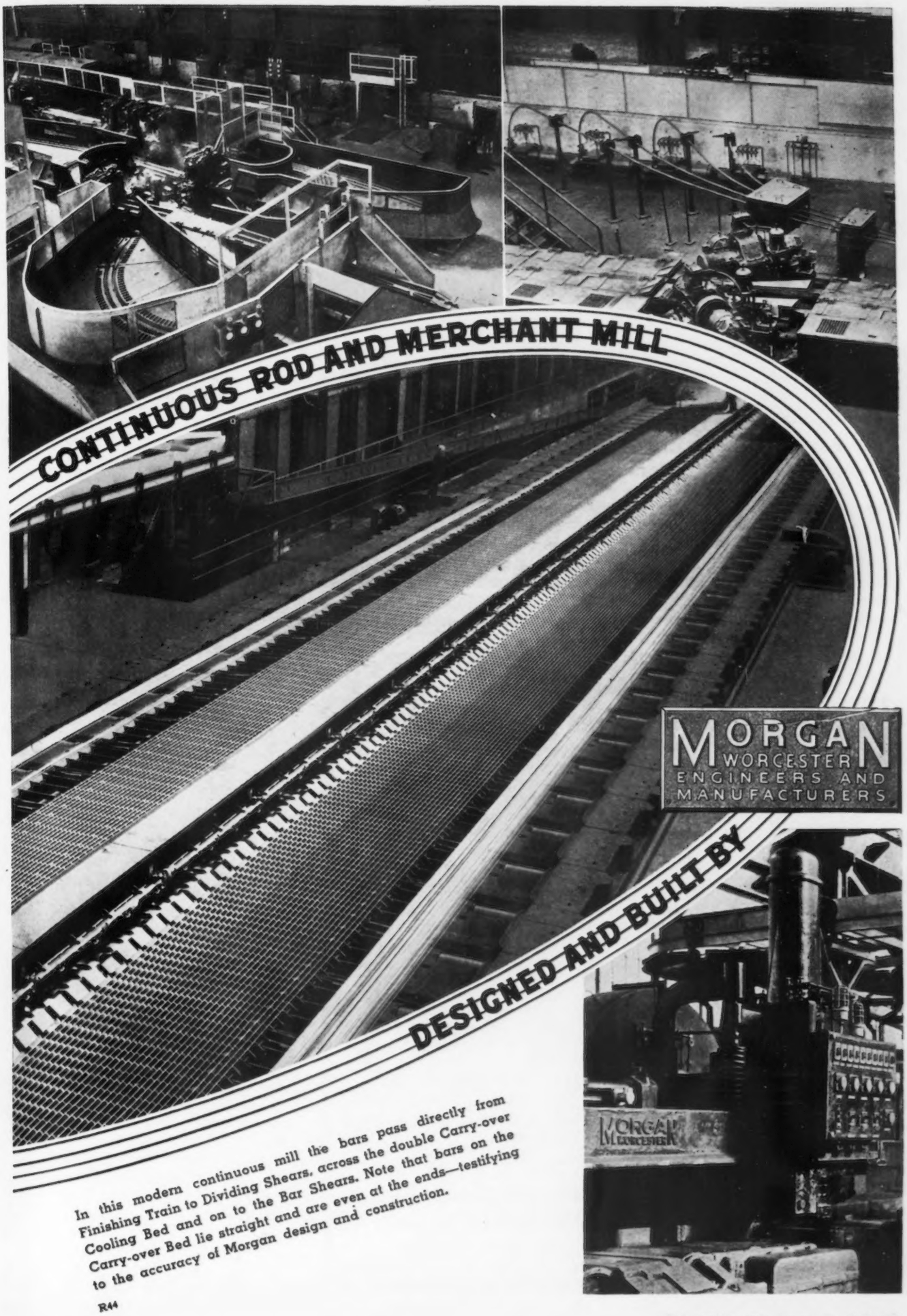
Oct. 13 to 15—Society of Automotive Engineers, aircraft production meeting, Los Angeles.

Oct. 17 to 21—National Metals Congress, Detroit.

Oct. 17 to 20—American Institute of Mining and Metallurgical Engineers, Detroit.

Oct. 31 to Nov. 2—National Foreign Trade Council, New York.

Dec. 5 to 10—Exposition of Power and Mechanical Engineering, New York.



In this modern continuous mill the bars pass directly from Finishing Train to Dividing Shears, across the double Carry-over Cooling Bed and on to the Bar Shears. Note that bars on the Carry-over Bed lie straight and are even at the ends—testifying to the accuracy of Morgan design and construction.

R44

...OBITUARY...

HERBERT M. WILCOX, who was appointed manager of the new products division of the Westinghouse Electric & Mfg. Co. a year ago, died in New York of a heart attack on July 28, aged 56 years. Mr. Wilcox was formerly vice-president of Electrical Research Products, Inc., a subsidiary of the Western Electric Co. He attended Princeton University for a time and transferred to Massachusetts Institute of Technology, from which he was graduated in 1905. In 1914 he joined the Winchester Repeating Arms Co. and served as an industrial engineer until 1925, when he became commercial manager of the Western Electric Co. He was promoted to vice-president in charge of operations the same year and took a major part in the development of sound motion picture equipment.

H. M. WILCOX

❖ ❖ ❖

GUSTAVE KAHN, former vice-president of the Truscon Steel Co., Youngstown, Ohio, died July 22 in Los Angeles. With his brothers, Julius and Albert Kahn, he worked on the idea of the first Kahn trussit bar and helped them found the Trussed Concrete Steel Co. in Youngstown. He retired March 1, 1929, as vice-president in charge of sales of Truscon.

❖ ❖ ❖

HENRY H. BIGHOUSE, sales engineer for the C. O. Bartlett & Snow Co., Cleveland, died July 23 in a Cleveland hospital after a three months' illness, at the age of 70. Born in Cincinnati, Mr. Bighouse went to Cleveland in 1904 and became associated with the Bartlett & Snow company the following year.

❖ ❖ ❖

FREDERICK AYRES LORENZ, JR., vice-president, American Steel Foundries and president, Steel Founders Society

of America for the past four years and whose death was noted in these columns last week, was an authority on steel foundries and recently was awarded the Seaman gold medal for outstanding contributions to steel foundry operating methods. He was a director and member of the advisory committee of the American Foundrymen's Association. Mr. Lorenz received a master's degree in engineering from the University of Illinois, later serving as inspection engineer and superintendent of the East Chicago rolling mill of Republic Iron & Steel Co. Joining the American Steel Foundries as wheel engineer in 1911, he rose to manager of the Indiana Harbor works, general manager of the industrial division and vice-president. He was a member of the Army Ordnance Association and of the American Management Association.

❖ ❖ ❖

JOHN STEVENSON, noted steel executive, who played a prominent part in the development of the Shenango Valley, died July 20 at the age of 90 while vacationing at his summer home at Beaumaris, Ontario.

He was born June 28, 1848 in Glasgow, Scotland, and studied chemistry at Glasgow University. He spent 7 years as an apprentice machinist before coming to the United States in 1872 at the request of Andrew Carnegie.

As an assistant engineer Mr. Stevenson helped Carnegie build his first mill at Pittsburgh. Later Mr. Stevenson moved up to New Castle, Pa., and became general manager of the New Castle Wire Nail Co. in 1888. In 1892 Mr. Stevenson was vice-president when the New Castle Steel & Tin Plate Co. was organized. He was associated with the late Frank H. Buhl, of Sharon, when the latter projected the Sharon Steel Co. In 1902 the Sharon Steel Co. was merged with the Union Steel Co. of Pittsburgh. Mr. Stevenson served as one of two vice-presidents of the Union Steel Co.

In 1904 he founded the Driggs-Seabury Corp. He was also interested in the Standard Tank Car Co. at Masury.

Several years ago the American Institute of Mining and Metallurgical Engineers honored Mr. Stevenson with the badge of the Legion of Honor. Recently on his ninetieth birthday the Valley communities presented him with a plaque.

❖ ❖ ❖

LEWIS E. CURTIS, consulting engineer and holder of many patents on

machinery for the metal lath industry, died recently at the age of 74 years. He started his business career as a patent attorney, but he soon gave up his law practice so that his entire time could be given to engineering work.

❖ ❖ ❖

ALBERT A. GECK, of the Breckenridge Machine Co., died on July 17.

❖ ❖ ❖

THOMAS J. BYRNE, sales representative, Carnegie-Illinois Steel Corp., Pittsburgh, died July 21, aged 58 years. Mr. Byrne had been with Carnegie-Illinois for 40 years.

❖ ❖ ❖

FRANK S. VAN VALKENBURG, 52 years old, former superintendent of the Jaxon Steel Products Co., died July 25 at Jackson, Mich.

❖ ❖ ❖

CHARLES NELSON BALLENTINE, 52 years old, former resident of Port Huron, Mich., died July 24 in Lakeland, Fla. Mr. Ballentine was southern district sales manager for the Bucyrus-Erie Co. with headquarters in Birmingham. He was a 1909 graduate of the University of Michigan Engineering College. In the World War he was a captain of the 100th Engineers of the 32nd Division and was rescued from the Tuscania when it was sunk off Ireland. His brother, James Ballentine, is an executive of the International Harvester Co.

❖ ❖ ❖

PAUL F. THAYER, president and secretary, Harr-Thayer Iron Co., Youngstown, died July 26 at Youngstown Hospital at the age of 56.

❖ ❖ ❖

WILLIAM L. HAMILTON, founder of the William Hamilton Mfg. Co., Cleveland, died July 25 at his home there, at the age of 53. For 17 years he was president of the Commercial Gauge Co. until he founded his own business in 1935.

❖ ❖ ❖

JOHN KEIFER, for 10 years superintendent of the Mid-West Forge Co., Cleveland, died July 25 at his home there. Formerly he was superintendent of the City Forge Co. and at one time served as a experimental engineer for Pittsburgh Crucible Steel Co.

❖ ❖ ❖

SAMUEL A. WIRE, retired assistant superintendent of the skelp mills of National Tube Co., Pittsburgh, died recently at his home in Lorain, Ohio. He was 70 and had retired three years ago after 39 years' service with the tube company.

LaFollette Forecasts Stronger Wagner Act

WASHINGTON.—Chairman LaFollette has expressed belief that the outcome of the Civil Liberty Committee's work will result in recommendations to Congress for strengthening the Wagner Labor Relations Act, holding that his proceedings have uncovered unmistakable evidence that "the right of labor to organize for collective bargaining has been frustrated." It is believed, however, that Congressional friends of the labor board will be reluctant to open the Wagner Act for revision at a time when the AFL is maintaining a growing animosity towards the board because of CIO bias.

FABRICATED STEEL

NORTH ATLANTIC STATES AWARDS

5375 Tons, North Bergen, N. J., contract MHT-74, New Jersey approach, Lincoln Tunnel, to American Bridge Co., Pittsburgh.

3900 Tons, New York, contract No. 20, Westside elevated highway, to Fort Pitt Bridge Works Co., Pittsburgh.

1800 Tons, New York, French Pavilion, World's Fair, to American Bridge Co., Pittsburgh.

1025 Tons, New York, Omnibus Garage, 721 Lenox Avenue, to Bethlehem Steel Co., Bethlehem, Pa.

450 Tons, New York, bridge over William F. Deegan Boulevard at 135th Street, to American Bridge Co.

265 Tons, Auburn, N. Y., Y.M.C.A. building, to Genesee Bridge Co., Rochester, N. Y.

260 Tons, Lynn, Mass., General Electric Co. marine reduction gear shop addition, to New England Structural Co., Everett, Mass.

235 Tons, Brooklyn, bathhouse, Betsy Head Park, to Lehigh Structural Steel Co., Allentown, Pa.

210 Tons, New Brighton, Pa., rehabilitation, Tenth Street bridge, to Keystone Engineering Co., Pittsburgh.

180 Tons, New Brunswick, N. J., building, Mutual Sunset Lamp Mfg. Co., to Belmont Iron Works, Philadelphia.

150 Tons, New Kensington, Pa., building 9-B, Aluminum Co. of America, to Bethlehem Steel Co., Bethlehem, Pa.

145 Tons, Jersey City, N. J., reconstruction, Clerk Street bridge, to Phoenix Bridge Co., Phoenixville, Pa.

135 Tons, Hoboken, N. J., building, Hoboken Land & Improvement Co., to F. G. Schaefer Iron Works, Edgewater, N. J.

110 Tons, Stamford, Conn., Globe Slicing Machine Co. factory, to Belmont Iron Works, Philadelphia.

110 Tons, Allegheny County, Pa., bridge, to American Bridge Co., Pittsburgh.

THE SOUTH

2000 Tons, Davidson, Okla., highway bridge, to Virginia Bridge Co., Roanoke, Va.

870 Tons, McIntosh and Pittsburg Counties, Okla., bridge, to Muskogee Iron Works, Inc., Muskogee, Okla.

415 Tons, Pondcreek, Okla., railroad bridge, to American Bridge Co., Pittsburgh.

237 Tons, Okarche, Okla., bridge, to J. B. Klein Iron & Foundry Co., Oklahoma City.

175 Tons, St. Augustine, Fla., North River bridge, to Bethlehem Steel Co., Bethlehem, Pa.

CENTRAL STATES

2325 Tons, Chicago, Ogden Avenue viaduct: 1925 tons to American Bridge Co., Pittsburgh; 400 tons to Wisconsin Bridge & Iron Co., Milwaukee.

1200 Tons, Canton, Ohio, Timken Technical High School, to Burger Iron Co., Akron, Ohio; Gibbons-Grable Co., Canton, general contractor.

840 Tons, Detroit, mill building for Rotary Electric Steel Co., to Fort Pitt Bridge Works Co., Pittsburgh.

795 Tons, Virginia, Minn., field house, to Wisconsin Bridge & Iron Co., Milwaukee.

582 Tons, Indianapolis, Washington Street subway, to Bethlehem Steel Co., Bethlehem, Pa., through Smith & Johnson, contractors.

505 Tons, Chicago, car shop for Santa Fe Railroad, to American Bridge Co., Pittsburgh.

385 Tons, Chicago, Winnemac Garden apartments, to Reuter Brothers, Chicago.

240 Tons, Cass and Pottawattamie Counties, Iowa, bridge, to Des Moines Steel Co., Des Moines, Iowa.

245 Tons, Toledo, Ohio, supports for Sun Oil Co., to Belmont Iron Works, Philadelphia.

175 Tons, Lisle, Ill., gymnasium, to an unnamed fabricator.

170 Tons, Floodwood, Mich., bridge, to American Bridge Co., Pittsburgh.

115 Tons, Cincinnati, Procter & Gamble machine shop, to R. C. Mahon Co., Detroit.

WESTERN STATES

1500 Tons, Honolulu, Hickman Field hangars, to Minneapolis-Moline Power Implement Co., Minneapolis.

615 Tons, Bremerton, Wash., building, Puget Sound Navy Yard, to Midland Structural Steel Co., Cicero, Ill.

180 Tons, Colfax, Cal., railroad overpass, to Herrick Iron Works, Oakland, Cal., by Campbell Construction Co., general contractors.

100 Tons, San Jose, Cal., Garden City pottery plant, to Herrick Iron Works, Oakland, Cal.

100 Tons, Brush, Colo., railroad underpass, to American Bridge Co., Pittsburgh.

NEW STRUCTURAL STEEL PROJECTS

NORTH ATLANTIC STATES

1350 Tons, New Haven, Conn., Ferry Street bridge.

400 Tons, Queens, N. Y., Borden Avenue highway bridge.

330 Tons, Rockaway Beach, N. Y., steel curbing, New York City Parkway Authority.

300 Tons, Annapolis, Md., repairs to Naval Academy mess hall.

265 Tons, New York, office building, City Bank & Trust Co.

200 Tons, Pittsburgh, Crescent elementary school.

185 Tons, Queens, N. Y., highway bridge, Long Island Railroad Co.

160 Tons, New York, World's Fair building, Electric Utilities.

150 **Tons,** Brooklyn, laboratory building for City of New York.
150 **Tons,** Pittsburgh, North approach, Highland Park bridge.
145 **Tons,** Wallington, Conn., beam bridge for Treasury Department.
120 **Tons,** Lincolndale, N. Y., gymnasium building, New York Catholic Protectory.
115 **Tons,** Donora, Pa., rehabilitation bridge, Washington and Westmoreland Counties.
100 **Tons,** West Warwick, R. I., town bridge.
100 **Tons,** Providence, R. I., New Haven Railroad power plant.

THE SOUTH

1100 **Tons,** Norfolk, Va., extension overhaul shop, Naval Air Station, Navy Department.
800 **Tons,** Fort Bliss, Tex., stables.
755 **Tons,** State of Texas, bridge.
700 **Tons,** Norfolk, Va., extension to building No. 100, Naval Supply Depot.

CENTRAL STATES

1900 **Tons,** Cleveland, East approach to Main Street bridge; Sam W. Emerson, Cleveland, low bidder on general contract.
2700 **Tons,** Rantoul, Ill., Air Corps school hangars; bids in.
700 **Tons,** Chicago, girder spans, Illinois Board of Local Improvements.
600 **Tons,** Detroit, factory and office building, Carboloy Co., Inc.
300 **Tons,** Wood River, Ill., mill building for Union Tank Car Co.
290 **Tons,** Washington County, Iowa, state undercrossing.
275 **Tons,** Missouri and Kansas, eight bridges for Missouri Pacific Railroad.
250 **Tons,** Chicago, South Western Avenue bridge.
200 **Tons,** North Platte, Neb., radial gates, Central Nebraska Public Power and Irrigation District.

140 **Tons,** Oberlin, Ohio, gymnasium building, Oberlin College.

WESTERN STATES

1045 **Tons,** Oakland, Cal., High Street County bridge; bids Aug. 23.
268 **Tons,** Cloverdale, Cal., Russian River State highway bridge; bids Aug. 19.

FABRICATED PLATES

AWARDS

730 **Tons,** Leetsdale, Pa., three hopper barges for Marquette Cement Mfg. Co., to Dravo Contracting Co., Pittsburgh.
310 **Tons,** Pittsburgh, N. H., penstock for reservoir, to Walsh Holyoke Steam Boiler Co., Holyoke, Mass.

REINFORCING STEEL

AWARDS

680 **Tons,** Brooklyn subway sections 7 and 8, to Bethlehem Steel Co., Bethlehem, Pa., through George H. Flynn, contractor.
374 **Tons,** Knob, Cal., All-American Canal, invitation B-42085-A, to Bethlehem Steel Co., San Francisco.
300 **Tons,** Knoxville, Iowa, Veterans' building, to Calumet Steel Co., Chicago.
250 **Tons,** Wyandotte, Mich., sewage treatment plant, to Bethlehem Steel Co., Bethlehem, Pa.
250 **Tons,** Canton, Ohio, Timken Technical High School, to Pollack Steel Co., Cincinnati, Ohio.
190 **Tons,** Lake County, Ill., paving work, to Bethlehem Steel Co., Bethlehem, Pa.
145 **Tons,** Mills, Wyo., Kendrick project, invitation A22349-A, to Colorado Fuel & Iron Co., Pueblo, Colo.
137 **Tons,** Coalinga, Cal., high school, to Gilmore Steel Co.
127 **Tons,** Rumsey, Cal., Yolo County Cache Creek State highway bridge, to Gilmore Steel Co.
117 **Tons,** Chilton, Wis., seminary, to W. H. Pipkorn Co., Milwaukee.
104 **Tons,** Glendive, Mont., Kendrick project, invitation 28064-A, to Youngstown Sheet & Tube Co., Youngstown.
104 **Tons,** Parco, Wyo., Kendrick project, invitation A-22360-A to Youngstown Sheet & Tube Co., Youngstown.

NEW REINFORCING BAR PROJECTS

4000 **Tons,** Los Angeles, United States Engineers Inv. 509-39-38, Columbia Steel Co., San Francisco, low bidder.
1600 **Tons,** Portsmouth, Va., Navy Department. Specification 8815, Pier 5.
1200 **Tons,** Fort Knox, Ky., barracks; bids in.
600 **Tons,** Annapolis, officers' apartments; Navy Department.
600 **Tons,** Boston, Boston University units; Turner Construction Co., contractor. Previously reported 450 tons.
530 **Tons,** Oakland, Cal., High Street County bridge; bids, Aug. 23.
300 **Tons,** Westmoreland County, Pa., five concrete structures and two overpass bridges, section 12-A and 12-B.
300 **Tons,** Des Moines, Bankers Life Building.
278 **Tons,** Calexico, Cal., All-American Canal, Bureau of Reclamation, invitation B-42101-A; bids Aug. 4.
175 **Tons,** Portsmouth, Va., overpass.
166 **Tons,** Eldridge, Cal., units 3 and 4 for Sonoma State Home; bids Aug. 23.
160 **Tons,** Akron, Ohio, reservoir; bids due Aug. 3.
143 **Tons,** Boulder City, Nev., Boulder Dam project, invitation C-23237A; bids taken Aug. 2.
140 **Tons,** Cleveland, East approach to Main Street bridge; Sam W. Emerson, Cleveland, low bidder on general contract.
132 **Tons,** California State highway bridges; bids Aug. 17.
125 **Tons,** Niles, Mich., sewage disposal plant.
116 **Tons,** Mills, Wyo., Kendrick project, invitation A-22353A; bids taken Aug. 1.
110 **Tons,** Washington County, Iowa, underpass.
105 **Tons,** Indianapolis, Veterans' building, Algernon Blair, Montgomery, Ala., low bidder.
100 **Tons,** Los Angeles, Cal., city grade separation at College and Figueroa streets; bids Aug. 17.

Steel Wages Cut by Producer In Mid-West; 700 Men Affected

A REDUCTION in wages ranging to 25 per cent has been placed in effect by a mid-west steel manufacturer, a step bringing nearer to a head the wage controversy which for the last month has been stirring the entire steel industry.

Approximately 700 wage earners are affected by the cut to which lodge leaders of the Amalgamated Association of Iron, Steel & Tin Workers, an affiliate of John L. Lewis' SWOC, have agreed.

News of the pay cut immediately aroused speculation as to whether larger companies, as a competitive move, would not immediately slash wages to escape part of the heavy losses which most steel manufacturers fear will otherwise be experienced during the third quarter.

At present the steel industry is torn between a desire to keep wages up as a result of the Administration's pressure against wage reductions and a still more powerful urge to slash wages as a realistic move to offset losses being incurred by recent drastic reductions in the prices of steel products.

Efforts by the Federal Government to prevent pay cuts have been centered in the Public Contracts Board hearings at Washington on demands by the SWOC that steel wages be frozen at or above present levels for firms taking government business. From Washington comes word that the board is likely to hand down its wage decision, which a host of small steel producers have opposed as ruinous to their business, in "about a month."

Meanwhile SWOC leaders fought against rumors inspired by this action, that the union, while attempting at Washington to fix wages in the steel industry, is at the same time making agreements with "preferred" producers by which wages are being lowered.

A factor in efforts to cut wages at some poorly-located plants is the recent change in steel pricing by which identical prices are quoted at various leading steel producing centers. Some plants must reduce wages to stay in business, union employees in some plants have been told.

As sentiment for a general wage cut for steel workers grew, some observers saw evidence that the SWOC, through its affiliate the Amalgamated Association, might take into account the unfavorable geographic position, financial condition, etc., of some companies, in agreeing to wage slashes without recourse to strikes. How this policy can be lined up with the SWOC announced intention of freezing wages, then eliminating the North-South and all other wage differentials is uncertain.

RAILROAD BUYING

Board of Transportation, City of New York, will receive bids at room 609, 250 Hudson Street, until Sept. 13, for 11 service cars.

Wheeling & Lake Erie is inquiring for five locomotives of 2-8-4 type.

Manilla Railroad has ordered 50 30-ton box cars from Pressed Steel Car Co. and 50 30-ton flat cars from Gregg Co., Ltd., New York and Brussels, Belgium.

July Iron Output Up 9.5 Per Cent

PRODUCTION of coke pig iron in July totaled 1,201,785 gross tons, compared with 1,062,021 tons in June. Daily output was at the rate of 38,767 tons, against 35,400 tons in June and represented an increase of 9.5 per cent.

On Aug. 1 there were 77 furnaces making iron, operating at the rate of 41,400 tons daily, compared with 70 furnaces on July 1, producing at the rate of 34,385 tons daily. Eight furnaces were put in operation and one was blown out or banked. The Steel Corporation put three in operation, independent producers blew three in and took one off blast and merchant producers put two in blast.

Among the furnaces blown in were the following: one Bethlehem, Bethlehem Steel Co.; one Oriskany, E. J. Lavino & Co.; one Haselton, one River, Republic Steel Corp.; one South Chicago (new), and one Gary, Carnegie-Illinois Steel Corp.; one Fairfield, Tennessee Coal, Iron & Railroad Co.; and one Woodward Iron Co. furnace.

The only furnace blown out or banked was a Cambria unit of Bethlehem Steel Co.

Daily Average Production of Coke Pig Iron

Gross Tons

	1938	1937	1936	1935	1934
January	46,100	103,597	65,351	47,656	39,201
February	46,367	107,115	62,886	57,448	45,131
March	46,854	111,596	65,816	57,098	52,243
April	45,871	113,055	80,125	55,449	57,561
May	40,485	114,104	85,432	55,713	65,900
June	35,400	103,584	86,208	51,570	64,338
½ year	43,497	108,876	74,331	54,138	54,134
July	38,767	112,866	83,686	49,041	39,510
August	....	116,317	87,475	56,816	34,012
September	....	113,679	91,010	59,216	29,935
October	....	93,311	96,512	63,820	30,679
November	....	66,891	98,246	68,864	31,898
December	....	48,075	100,485	67,950	33,149
Year	....	100,305	83,658	67,556	43,592

Production of Coke Pig Iron and Ferromanganese

Gross Tons

	Pig Iron*		Ferromanganese†	
	1938	1937	1938	1937
January	1,429,085	3,211,500	22,388	23,060
February	1,298,268	2,999,218	20,205	24,228
March	1,452,487	3,459,473	21,194	27,757
April	1,376,141	3,391,665	18,607	26,765
May	1,255,024	3,537,231	13,341	34,632
June	1,062,021	3,107,506	14,546	34,415
½ year	7,873,026	19,706,593	110,281	170,857
July	1,201,785	3,498,858	20,818	23,913
August	.....	3,605,818	....	29,596
September	.....	3,410,371	....	26,100
October	.....	2,892,629	....	26,348
November	.....	2,006,724	....	25,473
December	.....	1,490,324	....	22,674
Year	.....	36,611,317	....	324,961

*These totals do not include charcoal pig iron.
†Included in pig iron figures.

Merchant Iron Made, Daily Rate

Tons

	1938	1937	1936	1935	1934
January	10,635	16,106	10,537	3,926	7,800
February	8,854	16,514	11,296	6,288	7,071
March	8,524	16,457	10,831	7,089	7,197
April	8,273	14,517	13,897	8,799	8,838
May	6,431	19,483	12,814	8,441	9,099
June	5,375	15,870	14,209	7,874	9,499
July	....	19,609	11,619	8,644	7,880
August	....	17,831	12,148	8,194	6,043
September	....	20,065	12,526	10,090	4,986
October	....	18,950	13,645	11,199	5,765
November	....	15,662	14,739	12,503	6,610
December	....	10,964	14,852	13,312	4,399

Production by Districts and Coke Furnaces in Blast

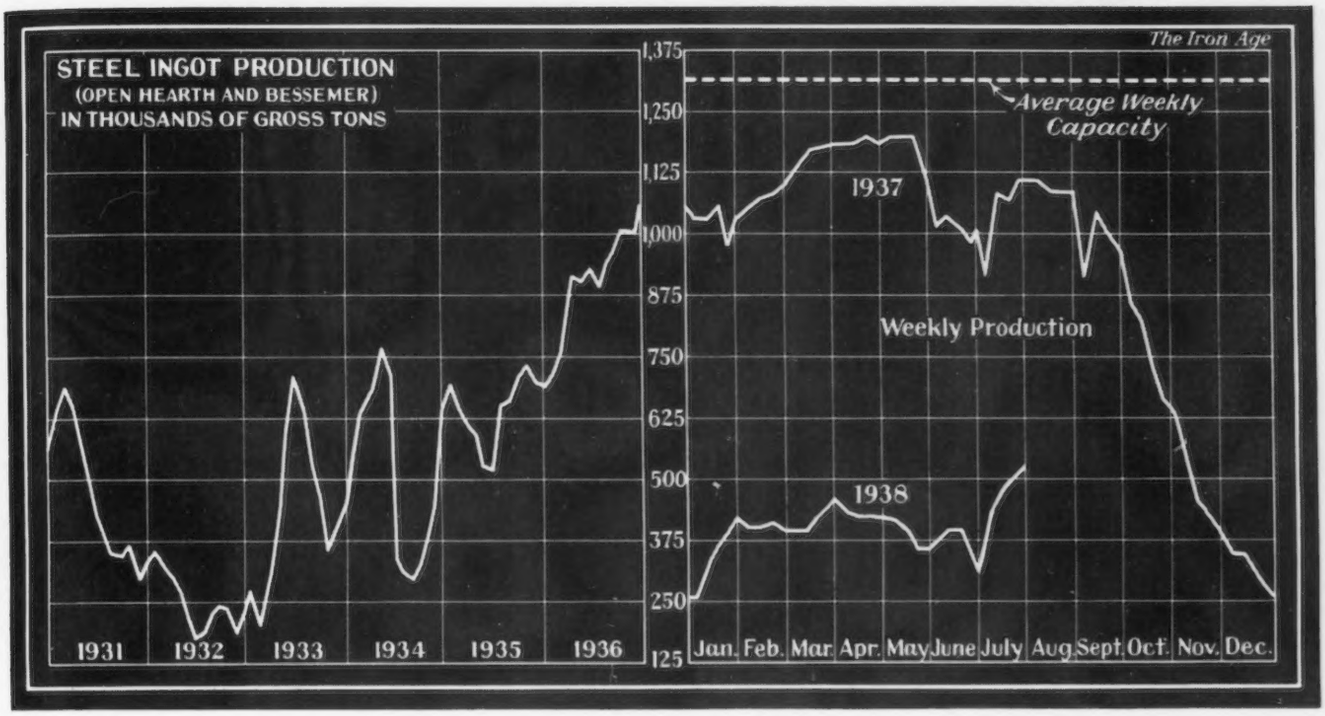
Furnaces	Production (Gross Tons) July (31 Days)	Production (Gross Tons) June (30 Days)	August 1 Number in Blast	August 1 Operating Rate, Tons a Day	July 1 Number in Blast	July 1 Operating Rate, Tons a Day
New York:						
Buffalo	78,800	72,294	4	2,540	4	2,410
Other New York and Mass.	21,233	14,223	2	685	2	690
Pennsylvania:						
Lehigh Valley	48,041	42,405	4	1,670	3	1,200
Schuylkill Valley	....	....	0	....	0	....
Susquehanna and Lebanon Valleys	14,614	13,504	1	470	1	450
Pittsburgh District	210,313	184,380	11	6,785	11	6,585
Ferro. and Spiegel	10,536	9,730	2	340	2	325
Shenango Valley	23,898	17,463	1	770	1	580
Western Pennsylvania	21,230	23,683	1	410	2	790
Ferro. and Spiegel	3,705	4,816	1	120	1	160
Maryland	96,007	80,224	4	3,095	4	2,675
Wheeling District	81,095	69,010	4	2,615	4	2,040
Ohio:						
Mahoning Valley	127,217	99,190	8	4,310	7	3,380
Central and Northern	75,335	69,840	6	2,760	5	2,330
Southern	17,994	18,510	2	580	2	490
Illinois and Indiana	208,666	183,616	11	7,925	9	5,595
Michigan and Minnesota	41,417	38,330	3	1,335	3	1,280
Colorado, Missouri and Utah	17,464	15,918	2	565	3	570
Ferromanganese	3,789	.....	1	120	0	....
The South:						
Virginia	.....	.....	0	....	0	....
Ferromanganese	2,788	.....	1	90	0	....
Kentucky	9,012	9,129	1	290	1	305
Alabama	88,631	95,756	7	3,925	5	2,530
Tennessee	.....	.....	0	....	0	....
Total	1,201,785	1,062,021	77	41,400	70	34,385

1939 Autos Seen on Roads Within 2 Months

DETROIT.—Sales of 1939 models and public announcements will begin weeks before the official automobile shows, it was learned authoritatively in Detroit this week. It is possible that in some cases new cars will be on the road before the end of September. Plymouth, for instance, probably will have 2500 cars built before the end of August. Dodge will have at least 50 pilot cars on its lines this month.

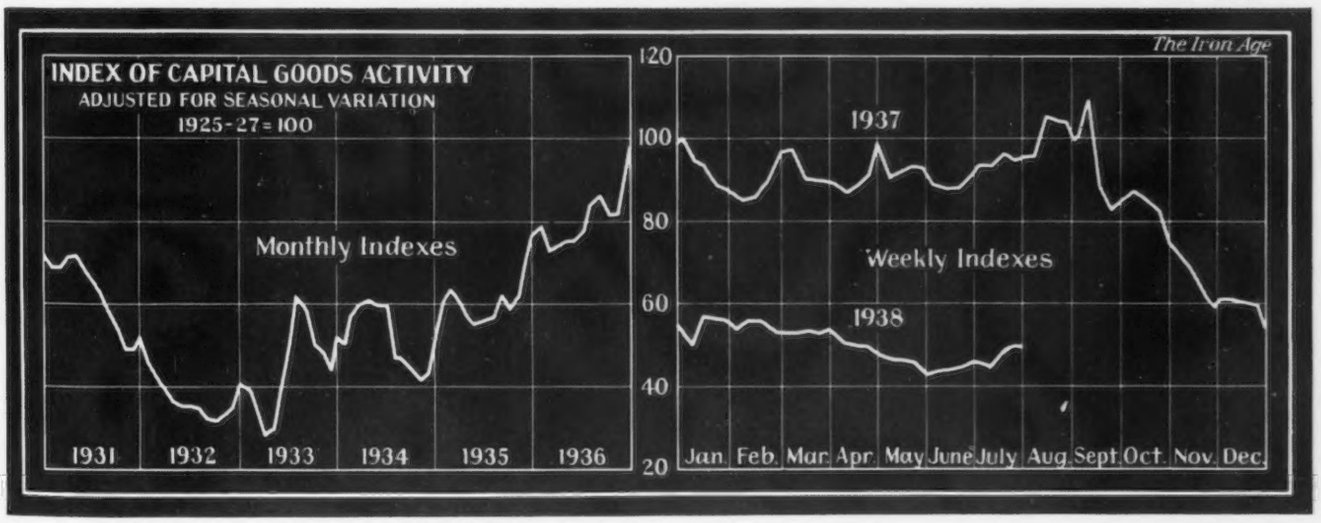
The sudden spurt in automotive activity in the last week in Detroit is indicative of the anticipation that production will start off in large volume as soon as the shop facilities are working smoothly.

Ingot Production Rises 3 Points to 40 Per Cent



District Ingot Production, Per Cent of Capacity	Pitts-burgh	Chicago	Valleys	Phila-delphia	Cleve-land	Wheel-ing	Buffalo	Detroit	Southern	S. Ohio River	Western	St. Louis	East-ern	Aggre-gate
CURRENT WEEK...	31.0	38.0	37.5	27.0	30.0	70.0	39.5	48.0	43.5	53.0	30.0	35.5	50.0	**40.0**
PREVIOUS WEEK..	28.0	38.0	31.0	27.0	19.0	65.0	38.0	48.0	39.5	42.0	30.0	26.0	50.0	**37.0**

Upward Trend in Capital Goods Output Continues



BOLSTERED by a gain in every component but the lumber carloadings series, THE IRON AGE weekly index of capital goods activity continues to reflect a rising trend in the production of capital goods. The combined index figure for the week ended July 30 was 50.2, a gain of 0.4 point over the preceding week. The movement in the construction series was due primarily to the placement of several large public contracts. This type project is accounting for about 72 per cent of the present volume of engineering awards. The gain in automobile assemblies was due chiefly to a less-than-seasonal decline in production.

	Week Ended July 30	Week Ended July 23	Comparable Week 1937	Comparable Week 1929
Steel ingot production[1]	52.1	50.3	124.0	135.6
Automobile production[2]	35.6	35.4*	100.8	118.5
Construction contracts[3]	62.3	60.5*	73.4	125.1
Forest products carloadings[4]	50.3	53.8	78.9	119.7
Production and shipments, Pittsburgh District[5]	50.8	48.9	104.9	129.8
Combined index	**50.2**	**49.8***	**96.4**	**125.7**

Sources: 1. THE IRON AGE; 2. Ward's Automotive Reports; 3. *Engineering News-Record*; 4. Association of American Railroads; 5. University of Pittsburgh. *Revised.

. . . .SUMMARY OF THE WEEK. . . .

. . . Ingot output reaches 9-month high point at 40 per cent.

° ° °

. . . Mid-West producer cuts wage rate up to 25 per cent.

° ° °

. . . Automobile makers expected in market by Aug. 15.

STEEL production this week rose three points to 40 per cent of capacity, the highest rate in almost nine months, as many leading producing centers reported stronger mill schedules and evidence accumulated that output will reach still higher levels this fall.

Typical of the upswing in ingot output, the Pittsburgh district gained three points to 31, the Cleveland district 11 points to 30 per cent, Birmingham four points to 43.5 per cent, Wheeling-Weirton five points to 70 per cent, Youngstown 6.5 points to 37.5 and Buffalo 1.5 points to 39.5.

Accompanying higher melting rates is a further advance in scrap, with No. 1 heavy melting steel up 25c. at Pittsburgh and 50c. at Chicago and THE IRON AGE scrap composite price rising to $14.33, a gain of 25c. to the highest level since Nov. 2, 1937.

MEANWHILE a cut in wages ranging to 25 per cent has been declared by a Mid-West steel manufacturer employing about 700 men, bringing nearer to a head the wage controversy which for the last month has been stirring the steel industry and other industries which follow its leadership in establishing pay rates. Lodge leaders of the Amalgamated Association of Iron, Steel & Tin Workers, an affiliate of John L. Lewis' SWOC, have agreed to the reduction at the Mid-West plant, causing immediate speculation as to whether the larger companies, as a competitive move, will not immediately slash wages.

As a result of the wage reduction, this week found the SWOC fighting against reports that it was trying to freeze wage rates at or above present levels and at the same time make agreements with "preferred" producers by which wages are being cut. And last week Eugene G. Grace, president of Bethlehem Steel Corp., said that his company had not discussed wages with the men and was not considering restoration of prices.

Following the recent equalizing of tin plate prices at Gary, Ind., and Pittsburgh, Granite City Steel Co. is quoting tin plate at $5.45 per base box, Granite City, Ill., a $2 a ton reduction from the recent price at that point, retroactive to June 24.

Cables to THE IRON AGE say that export prices on plates and heavy sheets have been lowered by the Continental Plate Cartel for most markets except the British Empire and the Far East.

While ingot output is higher and in some other phases the steel industry shows statistical gains, indications of a leveling off in ingot output during August are found in a decline in inquiries and widespread vacation shutdowns in steel consuming plants. Optimism within the trade is more restrained than a week ago, many producers having decided that profits will be more elusive in the third quarter and that losses for that period may top second quarter deficits, despite a higher rate of output.

OF the big steel consumers the automobile industry appears in the best position with the largest companies reporting a heavy decline in inventories. Sales of 1939 models are now expected to begin weeks before the automobile shows and in some cases new cars are likely to be on the road by Oct. 1. Virtually all automobile manufacturers are expected to enter the market for steel by Aug. 15. Heavier than expected retail sales have cleaned out stocks of used cars at some points and are cutting into remaining stocks of 1938 models, spurring this industry's plans for 1939.

Fabricated steel awards of 28,120 tons this week are in good volume compared with 8025 tons a week ago. Outstanding awards are 5375 tons at North Bergen, N. J., for the New Jersey approach to the Lincoln Tunnel; 3900 tons for a section of the West Side elevated highway, New York; 2325 tons for the Ogden Avenue viaduct, Chicago; 2000 tons for a highway bridge at Davidson, Okla.; 1800 tons for the French Pavilion at the World's Fair, New York; 1500 tons for hangars at Hickman Field, Honolulu, and 1025 tons for an omnibus garage, New York. New projects declined to 16,100 tons from 30,155 tons last week and included 2700 tons for Air Corps school hangars at Rantoul, Ill.; 1900 tons at Cleveland for the east approach to the Main Street bridge; 1350 tons at New Haven, Conn., for the Ferry Street bridge, and 1100 tons for a Naval Air Station shop extension at Norfolk, Va.

IRON ore shipments from the Upper Lake ports during July totaled 3,267,813 tons, compared with 10,704,457 tons in July, 1937, while the total ore movement up to Aug. 1 was 7,546,775 tons against 34,626.751 tons moved in the corresponding 1937 period.

Output of coke pig iron in July totaled 1,201,785 gross tons, compared with 1,062,021 tons in June. Daily output in July was 38,767 tons, an increase of 9.5 per cent over June while 77 furnaces were making iron on Aug. 1 compared with 70 a month earlier.

A Comparison of Prices

Market Prices at Date, and One Week, One Month, and One Year Previous
Advances Over Past Week in Heavy Type, Declines in Italics

Rails and Semi-finished Steel

Per Gross Ton:	Aug. 2, 1938	July 26, 1938	July 6, 1938	Aug. 3, 1937
Rails, heavy, at mill	$42.50	$42.50	$42.50	$42.50
Light rails, Pittsburgh	40.00	40.00	43.00	43.00
Rerolling billets, Pittsburgh	34.00	34.00	34.00	37.00
Sheet bars, Pittsburgh	34.00	34.00	34.00	37.00
Slabs, Pittsburgh	34.00	34.00	34.00	37.00
Forging billets, Pittsburgh	40.00	40.00	40.00	43.00
Wire rods, Nos. 4 and 5, P'gh	43.00	43.00	43.00	47.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.	1.90	1.90	1.90	2.10

Pig Iron

Per Gross Ton:	Aug. 2, 1938	July 26, 1938	July 6, 1938	Aug. 3, 1937
No. 2 fdy., Philadelphia	$21.84	$21.84	$21.84	$25.76
No. 2, Valley furnace	20.00	20.00	20.00	24.00
No. 2, Southern Cin'ti	20.06	20.06	20.16	23.69
No. 2, Birmingham	16.38	16.38	16.38	20.38
No. 2, foundry, Chicago*	20.00	20.00	20.00	24.00
Basic, del'd eastern Pa.	21.34	21.34	21.34	25.26
Basic, Valley furnace	19.50	19.50	19.50	23.50
Malleable, Chicago*	20.00	20.00	20.00	24.00
Malleable, Valley	20.00	20.00	20.00	24.00
L. S. charcoal, Chicago	28.34	28.34	28.34	30.04
Ferromanganese, seab'd carlots	92.50	92.50	92.50	102.50

*The switching charge for delivery to foundries in the Chicago district is 60c. per ton.

Finished Steel

Per Lb.:	Cents	Cents	Cents	Cents
Bars, Pittsburgh	2.25	2.25	2.25	2.45
Bars, Chicago	2.25	2.25	2.25	2.50
Bars, Cleveland	2.25	2.25	2.25	2.50
Bars, New York	2.59	2.59	2.59	2.78
Plates, Pittsburgh	2.10	2.10	2.10	2.25
Plates, Chicago	2.10	2.10	2.10	2.30
Plates, New York	2.29	2.29	2.29	2.53
Structural shapes, P'gh	2.10	2.10	2.10	2.25
Structural shapes, Chicago	2.10	2.10	2.10	2.30
Structural shapes, New York	2.27	2.27	2.27	2.5025
Cold-finished bars, P'gh	2.70	2.70	2.70	2.90
Hot-rolled strip, P'gh	2.15	2.15	2.15	2.40
Cold-rolled strip, P'gh	2.95	2.95	2.95	3.20
Sheets, galv., No. 24, P'gh	3.50	3.50	3.50	3.80
Sheets, galv., No. 24, Gary	3.50	3.50	3.50	3.90
Hot-rolled sheets, P'gh	2.15	2.15	2.15	...
Hot-rolled sheets, Gary	2.15	2.15	2.15	...
Cold-rolled sheets, P'gh	3.20	3.20	3.20	...
Cold-rolled sheets, Gary	3.20	3.20	3.20	...
Wire nails, Pittsburgh	2.45	2.45	2.45	2.75
Wire nails, Chicago dist. mill	2.45	2.45	2.45	2.80
Plain wire, Pittsburgh	2.60	2.60	2.60	2.90
Plain wire, Chicago dist. mill	2.60	2.60	2.60	2.95
Barbed wire, galv., P'gh	3.20	3.20	3.20	3.40
Barbed wire, galv., Chicago dist. mill	3.20	3.20	3.20	3.45
Tin plate, 100 lb. box, Pittsburgh and Gary	$5.35	$5.35	$5.35	$5.35

Scrap

Per Gross Ton:				
Heavy melting steel, P'gh	**$15.50**	$15.25	$13.25	$21.25
Heavy melting steel, Phila.	14.25	14.25	13.25	19.75
Heavy melting steel, Ch'go	**13.25**	12.75	11.25	20.25
Carwheels, Chicago	**14.75**	14.25	12.50	19.75
Carwheels, Philadelphia	**16.75**	15.75	14.75	19.75
No. 1 cast, Pittsburgh	**15.25**	14.75	14.25	20.25
No. 1 cast, Philadelphia	16.25	16.25	15.25	20.75
No. 1 cast, Ch'go (net ton)	**13.25**	12.75	11.25	16.75
No. 1 RR. wrot., Phila.	15.25	15.25	15.25	19.75
No. 1 RR. wrot., Ch'go (net)	**11.50**	11.00	9.25	19.75

Coke, Connellsville

Per Net Ton at Oven:				
Furnace coke, prompt	$3.75	$3.75	$3.75	$4.35
Foundry coke, prompt	4.75	4.75	4.75	5.00

Metals

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Electrolytic copper, Conn.	**10.125**	10.00	9.75	14.00
Lake copper, New York	**10.25**	10.125	9.875	14.12½
Tin (Straits), New York	*43.70*	43.75	43.625	58.875
Zinc, East St. Louis	4.75	4.75	4.75	7.00
Zinc, New York	5.14	5.14	5.14	7.85
Lead, St. Louis	4.75	4.75	4.75	5.85
Lead, New York	4.90	4.90	4.90	6.00
Antimony (Asiatic), N. Y.	14.00	14.00	14.00	15.375

On export business there are frequent variations from the above prices. Also in domestic business, there is at times a range of prices on various products, as shown in our detailed price tables.

The Iron Age Composite Prices

	Finished Steel	Pig Iron	Steel Scrap
August 2, 1938	2.300c. a Lb.	$19.61 a Gross Ton	$14.33 a Gross Ton
One week ago	2.300c.	19.61	14.08
One month ago	2.300c.	19.61	12.58
One year ago	2.512c.	23.25	20.42

Based on steel bars, beams, tank plates, wire, rails, black pipe, sheets and hot-rolled strip. These products represent 85 per cent of the United States output.

Based on average basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Southern iron at Cincinnati.

Based on No. 1 heavy melting steel quotations at Pittsburgh, Philadelphia and Chicago.

	Finished Steel HIGH	Finished Steel LOW	Pig Iron HIGH	Pig Iron LOW	Steel Scrap HIGH	Steel Scrap LOW
1938	2.512c., May 17	2.300c., July 6	$23.25, June 21	$19.61, July 6	$14.33, Aug. 2	$11.00, June 7
1937	2.512c., Mar. 9	2.249c., Jan. 4	23.25, Mar. 9	20.25, Feb. 16	21.92, Mar. 30	12.92, Nov. 16
1936	2.249c., Dec. 28	2.016c., Mar. 10	19.73, Nov. 24	18.73, Aug. 11	17.75, Dec. 21	12.67, June 9
1935	2.062c., Oct. 1	2.056c., Jan. 8	18.84, Nov. 5	17.83, May 14	13.42, Dec. 10	10.33, Apr. 23
1934	2.118c., Apr. 24	1.945c., Jan. 2	17.90, May 1	16.90, Jan. 27	13.00, Mar. 13	9.50, Sept. 25
1933	1.953c., Oct. 3	1.792c., May 2	16.90, Dec. 5	13.56, Jan. 3	12.25, Aug. 8	6.75, Jan. 3
1932	1.915c., Sept. 6	1.870c., Mar. 15	14.81, Jan. 5	13.56, Dec. 6	8.50, Jan. 12	6.43, July 5
1931	1.981c., Jan. 13	1.883c., Dec. 29	15.90, Jan. 6	14.79, Dec. 15	11.33, Jan. 6	8.50, Dec. 29
1930	2.192c., Jan. 7	1.962c., Dec. 9	18.21, Jan. 7	15.90, Dec. 16	15.00, Feb. 18	11.25, Dec. 9
1929	2.223c., Apr. 2	2.192c., Oct. 29	18.71, May 14	18.21, Dec. 17	17.58, Jan. 29	14.08, Dec. 3
1928	2.192c., Dec. 11	2.142c., July 10	18.59, Nov. 27	17.04, July 24	16.50, Dec. 31	13.08, July 2
1927	2.402c., Jan. 4	2.212c., Nov. 1	19.71, Jan. 4	17.54, Nov. 1	15.25, Jan. 17	13.08, Nov. 22

. . .PITTSBURGH. . .

. . . July bookings estimated at 15 per cent above June . . . Heavy melting steel scrap up 25c. . . . Mill operations gain three points to 31 per cent.

PITTSBURGH, August 2.—The volume of new business during the past week was a shade below that booked in the previous week. July business, however, ran from 15 to 20 per cent ahead of June bookings. Owing to the influx of publicly financed structural projects, shape bookings have been showing fair increases. Major support for sheet specifications continues to come from miscellaneous sources as automobile buying is relatively small.

Operations in the Pittsburgh district this week are up three points to 31 per cent of capacity. A small portion of this gain is due to some mills replenishing depleted stocks.

The Wheeling-Weirton rate is up five points this week to 70 per cent of capacity. Local producers continue to exhibit restrained optimism and look for a slow steady improvement in the volume of steel orders. Number one heavy melting is up 25c. a ton being quotable at $15.25 to $15.75.

Pig Iron

New business is about on a par with a week ago and continues to hold gains registered over June business.

Semi-Finished Steel

Bookings in the past week showed a slight improvement over the previous week, as some non-integrated plants continue to build up depleted inventories. July tonnage was in excess of that booked in June.

Bars, Plates and Shapes

Emanating from miscellaneous sources, hot rolled bar bookings showed further increases during the past week but individual tonnages were not exceptionally large. Structural inquiries and awards increased considerably during the past week with publicly financed projects predominating. American Bridge Co. was awarded a World's Fair building taking 1800 tons of fabricated material, and the New Jersey approach to the Lincoln Tunnel involving 5400 tons. Ft. Pitt Bridge Works, Pittsburgh, was awarded the contract for an elevated highway at New York City, involving 3900 tons.

Reinforcing Bars

Mill specifications increased considerably during the past week and reflect a larger number of projects closed recently, a major portion of which are being publicly financed. More work of this nature is in the offing.

Wire

Although merchant wire products are in less demand than a week ago, owing to seasonal influences, manufacturers' wire demand is slightly more active. July business ran from five to ten per cent ahead of June bookings.

Tin Plate

Tin plate operations have declined slightly from a week ago and are estimated this week at 35 per cent. New business continues sporodic as can makers are ordering only absolute necessities and are using as much of their inventories as possible.

Tubular Goods

Although the improvement is not marked, oil-country goods specifications again increased during the past week.

Sheets and Strip

Sheet bookings during the past week leveled off further but July tonnages were at least 25 per cent greater than June business. Major support continues to come from miscellaneous sources as automobile orders are small.

. . . .ST. LOUIS. . . .

ST. LOUIS, Aug. 2.—The St. Clair County Board of Supervisors at Belleville, Ill., will open bids on Aug. 11 for a bridge across the Mississippi river, connecting East St. Louis and St. Louis. Requiring 14,085 tons of structural shapes, including 4,590 tons of silicon steel, and 1,215 tons of reinforcing bars, this 8,063 foot, $5,000,000 bridge, as listed in the IRON AGE of last week, is the largest project that has been developed here in several years.

Specifications for finished iron and steel were reported to be a little better in volume during the last week, consumers still being disinclined to buy only for jobs in hand. The buying has been general.

For the present buying of pig iron is through, virtually every melter in the St. Louis area having bought their requirements for the third quarter since the price was reduced $4 a ton. A sale of 2500 tons was reported. Shipments for July are expected to show a substantial improvement over the preceding month. The melt is picking up in most lines.

Weekly Booking of Construction Steel

	Week-Ended				Year to Date	
	Aug. 2, 1938	July 26, 1938	July 6, 1938	Aug. 3, 1937	1938	1937
Fabricated structural steel awards	28,120	8,025	16,855	13,000	409,270	727,340
Fabricated plate awards	1,040	4,240	310	1,820	79,815	81,490
Steel sheet piling awards	0	700	12,500	0	29,985	30,520
Reinforcing bar awards	2,800	2,800	1,425	13,820	161,365	160,890
Total Letting of Construction Steel	31,960	15,765	31,090	28,640	680,435	1,000,240

. . . . CHICAGO . . . .

. . . Nearly all automobile makers expected to be in market for steel by Aug. 15 . . . Ingot production for week holds unchanged at 38 per cent.

CHICAGO, Aug. 2.—Fractional operating changes at local mills, both upward and downward, have resulted in no net difference from last week, production continuing at 38 per cent of capacity.

Although much of the wave of optimism which swept through steel circles here a few weeks ago has lessened, one seller was able to report last week as the second best of the year both in sales and specifications. Due primarily to a happy combination of early automobile orders, some railroad tonnage and the closing of several large construction jobs, this near-record figure, it was said, should not be emphasized too strongly as a trend indicator.

Sellers are confident that nearly all motor car builders will have been in the market to some extent by Aug. 15 and that 1939 production should get underway in earnest soon thereafter. Considerable optimism regarding 1939 as an automobile year was heard in Detroit and the East by a Chicago man close to the steel industry during a recent business trip. A small amount of fairly general buying for this purpose has already been seen.

Still leaders in the ranks of consumers are the jobbers, miscellaneous buyers, and makers of farm implements and tractors, especially the last named.

As producers become more familiar with the present arrangement of basing points the fact that profits are now more elusive than ever seems increasingly obvious. The need for operating economies has resulted in short furloughs without pay for certain classes of workers in some mills. At all plants, however, working forces are being geared closely to production schedules, so that these temporary layoffs from time to time are not unusual in any sense.

Three Harvester Chicago plants were reopened this week but employment at two will be reduced after Aug. 15 and the tractor works will be shut down indefinitely at that time.

Pig Iron

Shipments during June were up as much as 83 per cent in some cases, and advance reports indicate August specifications will follow about the same trend as July. The rise in foundry coke was only slight however, foundries still operating only a few days each week. Some large orders from farm equipment makers were booked over the past few weeks.

Bars

Advance buying for 1939 cars has not affected bar sales greatly as yet. A classification of general buyers, jobbers and builders of farm implements and tractors are heading the consuming list at present.

Wire and Wire Products

Prices are said to be fairly firm even though a normally slack season is at hand. Merchant trade demand is waning somewhat but still is the leading line. Manufacturing products are expected to receive an impetus after the middle of August, when some motor car buying is anticipated.

Warehouse Business

July managed to equal the showing of June, a good performance considering the light demand early last month, and the usual downward trend for this time of year. Interest was broad and touched nearly all products. If orders continue at present rates, some bare spots may show up in warehouse stocks, which are being kept trimmed as closely as possible to current needs. Buying habits of customers indicate that fill-in orders are still being received from users who ordinarily buy in mill quantities.

Structural Shapes and Reinforcing Steel

Awards and inquiries for both shapes and bars are the most numerous in some time, and include several large projects. The 2300-ton Ogden Avenue viaduct was split, 1925 tons going to American Bridge and 400 tons to Wisconsin Bridge and Iron. A Minneapolis concern will fabricate 1500 tons of shapes for Hawaiian airplane hangars, and a 2000-ton reinforcing project will soon result in an award. Reinforcing prices are spotty.

Plates, Sheets and Strip

The Southern Railway which has a considerable amount of business already on local mills, is building an additional 150 to 175 cars. It is believed that Aug. 15 will have seen nearly all automobile producers in the market for some flat rolled steel, and that assemblies of 1939 models will increase from that date on. Farm equipment plants, especially tractor makers, jobbers and miscellaneous buyers are actively in the market.

..CAST IRON PIPE..

Cambridge, Mass., will take bids this week on 1000 ft. of 40-in. pipe.

Procurement Office, Boston, has awarded 3300 ft. of 12-in. pipe to Warren Pipe & Foundry Corp., Boston, for a Newburyport, Mass., job.

Auburn, Mass., has awarded 14,000 ft. of 6-in. pipe for Packachoag Hill water project to R. D. Wood Co. WPA will do the contracting.

East Smithfield, R. I., will soon announce plans for a water system and has obtained a WPA grant of $17,400. Jenks & Ballou, Providence, are engineers.

Fitchburg, Mass., has awarded 2700 ft. of 12-in., class 250, pipe to Warren Pipe & Foundry Corp., Boston.

Narragansett, R. I., has plans for a water system to cost $493,000, and has applied for a WPA grant of $209,382. Fay, Spofford & Thorndike, Boston, are engineers.

Oakboro, N. C., plans pipe lines for water system; also elevated steel tank and tower, pumping machinery and other waterworks installation. Fund of $60,000 has been secured through Federal grant and loan for this and sewer system. Work will begin soon.

Campbellsville, Ky., plans pipe lines for water system and other waterworks installation, including pumping machinery and auxiliary equipment, and extensions in reservoir. Fund of $69,500 has been arranged through Federal aid.

Ottumwa, Iowa, plans extensions in main 24-in. water pipe line and several smaller lines; work scheduled to begin this month. Fund of $29,100 has been arranged through Federal aid.

Madison, Wis., plans pipe line extensions in water system; also new pumping machinery and accessory equipment for waterworks station. Cost $64,000, of which $28,800 will be secured through Federal grant. Leon A. Smith is superintendent of water department.

Metropolitan Water District, Los Angeles, F. E. Weymouth, general manager and chief engineer, has authorized pipe lines for laterals and distributing mains in all parts of district not served by agencies outside of district, work to include a 50-in. main line from 98th and Wadsworth Streets to a new 1000-acre-ft. reservoir to be built in Palos Verdes Hill district, about 17½ miles in all; pipe lines from reservoir for main supply to Long Beach, Compton and Torrance; main feeder line from present high line at San Dimas to connections with main supply lines at Santa Ana, Anaheim and Fullerton, all in Orange County; also main pipe lines for water supply to Glendale and Burbank. Entire project will

cost close to $7,000,000. Bids are scheduled to be asked soon.

Ventura, Cal., plans main pipe line for connection with city water system and new water reservoir and water-softening plant. Cost about $440,000, of which $180,000 will be represented by Federal grant. D. C. McMillan is city manager.

Grand Falls, Tex., plans pipe lines for water system, including about 13,000 lin. ft. of 6-in. for main lines, 50,000-gal. elevated steel tank and tower, deep-well pumping machinery and other waterworks equipment. Financing is being arranged through Federal aid. H. T. Cunningham, Grand Falls, is engineer.

Swansea, S. C., plans pipe lines for water system and other waterworks installation, including elevated steel tank and tower, pumping machinery, etc. Fund of $40,000 has been arranged through Federal aid.

Haubstadt, Ind., plans pipe lines for water system and other waterworks installation, including deep-well turbine pumping unit and accessories, filter station, etc. Appropriation of $40,000 is being arranged through Federal aid. J. W. Moore & Son, Indiana Pythian Building, Indianapolis, are consulting engineers.

Wisconsin Rapids, Wis., plans pipe lines for water system and has secured fund of about $60,000 for this and extensions in sewerage system. Carl A. Cajanus is city engineer.

Purchaser of Supplies, San Francisco, asks bids Aug. 5 on 25,000 ft. of 6-in. pipe.

Helper, Utah, will hold election Aug. 9 to vote $63,000 in bonds to finance construction of waterworks improvements.

Santa Rosa, Cal., will hold election Aug. 23 to vote $130,000 in bonds to help finance construction of water and fire system improvements. Total cost about $230,000, of which $100,300 will be PWA grant.

Centerville-Osterville Fire District, Barnstable, Mass., will receive bids until Aug. 15 for 2345 tons of 6 to 12-in. pipe. Temporary office of Water Commission Board is in Pythian Hall, Monument Square, Centerville, Mass.

..GREAT BRITAIN..

. . . Plate Cartel reduces export prices by 10s.

LONDON, Aug. 2 (*By Cable*).—The Continental Plate Cartel reduced export prices on plates, thick sheets and flat billets for most markets except British Empire and the Far East by an average of 10s., gold.

The Richard Thomas financial reconstruction has been approved. The Bank of England and other banks have formed a private company styled E. V. Finance & Holding Co. to take up £5,500,000 of Richard Thomas 4½ per cent debentures.

Finished Steel Base Prices

Published all-rail through freight tariffs pe

From → / To ↓	PITTSBURGH	CHICAGO AND GARY	BIRMINGHAM	CLEVELAND	YOUNGSTO
	Price per 100 lb.	*Price per 100 lb.*	*Price per 100 lb.*	*Price per 100 lb.*	
	Bars, soft steel $2.25	*Bars, soft steel $2.25	Bars, soft steel $2.25	Bars $2.25	Plates ....
	Shapes 2.10	*Shapes 2.10	Shapes, standard 2.10	Plates 2.10	H. R. sheet
	Plates 2.10	*Plates 2.10	Plates 2.10	H. R. sheets 2.15	C. R. sheet
	Hot Rolled sheets 2.15	*H. R. strip 2.15	H. R. sheets 2.15	C. R. sheets 3.20	Galv. sheet
	Cold Rolled sheets 3.20	†C. R. strip 3.05	Galv. sheets 3.50	H. R. strip 2.15	H. R. strip
	Galv. sheets, 24 ga. 3.50	†Bright wire 2.60	H. R. strip 2.15	C. R. strip 2.95	C. R. strip
	Hot Rolled strip 2.15	*Conc. reinf. bars 2.05	Bright wire 2.60	Bright wire 2.60	Conc. reinf.
	Cold Rolled strip 2.95	††H. R. sheets 2.15	Conc. reinf. bars 2.05	Conc. reinf. bars 2.05	
	Bright wire 2.60	††C. R. sheets 3.20			
	Conc. reinf. bars 2.05	††Galv. sheets 3.50			
	Freight Rate per 100 lb.	*Freight Rate per 100 lb.*	*Freight Rate per 100 lb.*	*Freight Rate per 100 lb.*	*Freight*
HARTFORD, CONN.	$ .41	$ .53	$ .56	$ .42	
BOSTON	.44	.55	.56	.44	
PORTLAND, ME.	.47	.57	.56	.46	
PROVIDENCE, R. I.	.44	.55	.56	.44	
BURLINGTON, VT.	.43	.53	.56	.42	
NEW YORK CITY	.36	.52	.54	.41	
SYRACUSE, N. Y.	.33	.44	.54	.31	
NEWARK, N. J.	.36	.52	.54	.41	
PHILADELPHIA	.32	.50	.54	.39	
YORK, PA.	.28	.46	.54	.35	
WILMINGTON, DEL.	.32	.50	.54	.39	
BALTIMORE	.30	.47	.54	.36	
RICHMOND, VA.	.35	.50	.46	.41	
ATLANTA, GA.	.64	.64	.24	.63	
JACKSONVILLE, FLA.	.77	.78	.44	.77	
NEW ORLEANS	.74	.55	.37	.72	
CHATTANOOGA, TENN.	.55	.54	.22	.55	
HUNTINGTON, W. VA.	.28	.35	.40	.28	
LOUISVILLE, KY.	.36	.29	.34	.32	
CINCINNATI	.29	.28	.39	.26	
INDIANAPOLIS	.33	.23	.54	.29	
FLINT, MICH.	.31	.26	.68	.24	
PEORIA, ILL.	.41	.18	.57	.36	
ROCK ISLAND, ILL.	.43	.19	.64	.39	
MILWAUKEE	.40	.09½	.62	.34	
DES MOINES, IOWA	.61	.33	.73	.54	
WICHITA, KAN.	.89	.65	.85	.76	
OMAHA, NEB.	.67	.50	.73	.63	
ST. LOUIS, MO.	.43	.24	.44	.40	
DENVER	1.08	.91	.99	1.03	
[2]BOISE, IDAHO	1.27	1.10	1.19	1.27	
[2]BUTTE, MONT.	1.27	1.10	1.19	1.27	
MINNEAPOLIS & ST. PAUL	.68	.33	.74	.59	
FARGO, N. D.	.81	.65	1.08	.77	
OKLAHOMA CITY, OKLA.	.95	.77	.79	.89	

[1] Motor compelled rate.

[2] Rate applies to a minimum weight of 80,000 lb.

[3] Located in St. Louis-Granite City switching limits.

*Both Chicago and Gary are basing points on these products.

†Chicago only is a basing point on these products.

††Gary only is a basing point on these products.

PRESENTED herewith is a table of all-rail freight rates from important mill basing points to 35 selected destinations throughout the country. This table will assist steel users to determine the effect of the recent basing point changes on the delivered prices of various finished steel products at their plants. Listed horizontally across the top of the table are 13 mill basing points and the prices of important fi based on these points. Ru the table are 35 consuming rates per 100 lb. listed in th these consuming points.

Here is an examp'e of computing delivered prices

se Prices and Freight Rates to 35 Co

ough freight tariffs per 100 lb. from principal basing points to selected consuming centers

ND		YOUNGSTOWN		MIDDLETOWN		SPARROWS POINT		BETHLEHEM	
	Price per 100 lb.		*Price per 100 lb.*		*Price per 100 lb.*		*Price per 100 lb.*		
	$2.25	Plates	$2.10	H. R. sheets	$2.15	Conc. reinf. bars	$2.05	Shapes	
	2.10	H. R. sheets	2.15	C. R. sheets	3.20	Plates	2.10		
ets	2.15	C. R. sheets	3.20	Galv. sheets	3.50	H. R. sheets	2.15		
ets	3.20	Galv. sheets	3.50	H. R. strip	2.15	Galv. sheets	3.50		
rip	2.15	H. R. strip	2.15						
rip	2.95	C. R. strip	2.95						
re	2.60	Conc. reinf. bars	2.05						
nf. bars	2.05								
ht Rate per 100 lb.		*Freight Rate per 100 lb.*		*Freight Rate per 100 lb.*		*Freight Rate per 100 lb.*		*Freight Rate per 1*	
$ .42		$ .42		$ .48		$ .31		$ .25	
.44		.44		.51		.36		.31	
.46		.46		.53		.41		.36	
.44		.44		.51		.35		.30	
.42		.42		.48		.39		.32	
.41		.39		.46		.24		.17	
.31		.30		.40		.32		.26	
.41		.39		.46		.24		.15	
.39		.35		.43		.17		.11½	
.35		.31		.41		.11½		.18	
.39		.35		.43		.13		.16	
.36		.33		.41		.04¼[1]		.21	
.41		.39		.42		.21		.30	
.63		.64		.54		.62		.66	
.77		.77		.68		.62		.66	
.72		.73		.63		.83		.87	
.55		.55		.44		.62		.66	
.28		.28		.23		.37		.41	
.32		.35		.22		.45		.47	
.26		.29		.08		.41		.43	
.29		.33		.19		.44		.46	
.24		.28		.28		.44		.42	
.36		.39		.30		.51		.52	
.39		.41		.35		.53		.54	
.34		.37		.32		.50		.50	
.54		.56		.51		.70		.69	
.76		.79		.70		1.05		.95	
.63		.65		.58		.79		.81	
.40		.42		.32		.52		.54	
1.03		1.06		.99		1.21		1.22	
1.27		1.27		1.19		1.43		1.43	
1.27		1.27		1.19		1.43		1.33	
.59		.62		.58		.82		.76	
.77		.79		.75		.94		.94	
.89		.95		.84		1.08		1.10	

the prices of important finished steel products which are based on these points. Running vertically on both sides of the table are 35 consuming points, with the carload freight rates per 100 lb. listed in their respective positions opposite these consuming points.

Here is an example of how the table may be used in computing delivered prices on a given product. A buyer of cold rolled sheets in Syracuse desirous of determining the lowest delivered price to his plant, first glances through the basing points listed at the top of the table and locates the points on cold rolled sheets. These points are Pittsburgh, Gary, Cleveland, Youngstown, Middletown, Buffalo and Granite City. Comparing the freight rates under these points and opposite Syracuse, it is seen that the Buffalo-

Consuming Centers Told at a Glance

centers and base prices per 100 lb. of major finished steel products

M		BUFFALO		COATESVILLE		CLAYMONT		GRANITE CITY		WORCESTER	
	Price per 100 lb.		*Price per 100 lb.*		*Price per 100 lb.*		*Price per 100 lb.*		*Price per 100 lb.*		*Price per 100*
	$2.10	Bars, soft steel	$2.25	Plates	$2.10	Plates	$2.10	H. R. sheets	$2.25	C. R. strip	$3.
		Shapes	2.10					C. R. sheets	3.30	Bright wire	2.7
		H. R. sheets	2.15					Galv. sheets	3.60		
		C. R. sheets	3.20								
		Galv. sheets	3.50								
		Conc. reinf. bars	2.05								
t Rate per 100 lb.		*Freight Rate per 100 lb.*		*Freight Rate per 100 lb.*		*Freight Rate per 100 lb.*		*Freight Rate per 100 lb.*		*Freight Rate per 100 lb.*	
$ .25		$ .35		$ .27		$ .26		$ .59		$ .17	
.31		.37		.33		.32		.62		.12	
.36		.41		.37		.37		.64		.23	
.30		.39		.31		.30		.61		.13	
.32		.35		.37		.34		.59		.26	
.17		.34		.20		.19		.57		.26	
.26		.21		.29		.30		.51		.28	
.15		.34		.20		.19		.57			
.11½		.34		.09½		.05		.54			
.18		.31		.11½		.17		.52			
.16		.35		.08		.05		.54			
.21		.34		.16		.15		.52			
.30		.41		.26		.26		.53			
.66		.66		.66		.66		.57			
.66		.79		.66		.66		.72			
.87		.75		.87		.87		.53			
.66		.58		.66		.66		.48			
.41		.36		.40		.41		.39			
.47		.41		.46		.47		.28			
.43		.35		.42		.43		.29			
.46		.37		.44		.46		.26			
.42		.27		.43		.45		.39			
.52		.43		.52		.53		.18			
.54		.44		.53		.54		.20			
.50		.39		.50		.52		.26			
.69		.59		.70		.73		.33			
.95		.84		.93		1.07		.56			
.81		.69		.79		.82		.46			
.54		.45		.53		.54		[illegible]			
1.22		1.11		1.21		1.23		.87			
1.43		1.27		1.43		1.43		1.05			
1.33		1.27		1.43		1.43		1.05			
.76		.63		.76		.83		.35			
.94		.80		.94		.96		.70			
1.10		.98		1.11		1.11		.64			

DETROIT NOTE

For purposes of comparison, listed below are the arbitrary Detroit delivered prices per 100 lb.

Bars, soft steel	$2.35
H. R. sheets	2.25
C. R. sheets	3.30
H. R. strip	2.25
C. R. strip	3.05
Conc. reinf. bars	2.15

Freight rates per 100 lb. from important basing points to Detroit are:

Cleveland	$0.22
Chicago-Gary	.28
Pittsburgh	.29
Buffalo	.26

Freight rates per 100 lb. between Detroit and Flint is $0.12¼.

ning
ough
ates
Pitts-
ffalo
hese
falo-

Syracuse rate of 21c. is the lowest rate available. Hence to find the delivered cost of cold rolled sheets to this plant it is only necessary to add the 21c. freight rate to the cost of the sheets at Buffalo, $3.20c. per 100 lb., to obtain the delivered price, which is, in this case, $3.41 per 100 lb.

The tab'e may also be used to compute the amount that must be absorbed by a producer located at some other basing point in order to sell competitively to the above plant. For instance, the Pittsburgh-Syracuse freight rate is 33c. as compared with 21c. for Buffalo-Syracuse. In both instances the base prices are identical. Hence, to sell competitively in Syracuse, the Pittsburgh mill must absorb 12c. per 100 lb. or $2.40 a ton. Like comparisons may be worked out with reference to all other basing points.

The freight rates listed in the all-rail through rates, and do not combination rates that are availabl ping points. In certain sections of bination rates would be lower. Sem billets, etc., takes a different freight apply only on various finished steel

ld at a Glance

eel products

LAYMONT	Price per 100 lb.	Freight Rate per 100 lb.
ıtes	$2.10	$ .26
		.32
		.37
		.30
		.34
		.19
		.30
		.19
		.05
		.17
		.05
		.15
		.26
		.66
		.66
		.87
		.66
		.41
		.47
		.43
		.46
		.45
		.53
		.54
		.52
		.73
		1.07
		.82
		.54
		1.23
		1.43
		1.43
		.83
		.96
		1.11

GRANITE CITY	Price per 100 lb.	Freight Rate per 100 lb.
H. R. sheets	$2.25	$ .59
C. R. sheets	3.30	.62
Galv. sheets	3.60	.64
		.61
		.59
		.57
		.51
		.57
		.54
		.52
		.54
		.52
		.53
		.57
		.72
		.53
		.48
		.39
		.28
		.29
		.26
		.39
		.18
		.20
		.26
		.33
		.56
		.46
		.87
		1.05
		1.05
		.35
		.70
		.64

WORCESTER	Price per 100 lb.	Freight Rate per 100 lb.
C. R. strip	$3.15	$ .17
Bright wire	2.70	.12
		.23
		.13
		.26
		.26
		.28

DETROIT NOTE

For purposes of comparison, listed below are the arbitrary Detroit delivered prices per 100 lb.

Bars, soft steel	$2.35
H. R. sheets	2.25
C. R. sheets	3.30
H. R. strip	2.25
C. R. strip	3.05
Conc. reinf. bars	2.15

Freight rates per 100 lb. from important basing points to Detroit are:

Cleveland	$0.22
Chicago-Gary	.28
Pittsburgh	.29
Buffalo	.26

Freight rates per 100 lb. between Detroit and Flint is $0.12¼.

← From / To ↓
HARTFORD, CONN.
BOSTON
PORTLAND, ME.
PROVIDENCE, R. I.
BURLINGTON, VT.
NEW YORK CITY
SYRACUSE, N. Y.
NEWARK, N. J.
PHILADELPHIA
YORK, PA.
WILMINGTON, DEL.
BALTIMORE
RICHMOND, VA.
ATLANTA, GA.
JACKSONVILLE, FLA.
NEW ORLEANS
CHATTANOOGA, TENN.
HUNTINGTON, W. VA.
LOUISVILLE, KY.
CINCINNATI
INDIANAPOLIS
FLINT, MICH.
PEORIA, ILL.
ROCK ISLAND, ILL.
MILWAUKEE
DES MOINES, IOWA
WICHITA, KAN.
OMAHA, NEB.
ST. LOUIS, MO.
DENVER
[2]BOISE, IDAHO
[2]BUTTE, MONT.
MINNEAPOLIS & ST. PAUL
FARGO, N. D.
OKLAHOMA CITY, OKLA.

ıt in order to sell competitively to the above instance, the Pittsburgh-Syracuse freight rate compared with 21c. for Buffalo-Syracuse. In ces the base prices are identical. Hence, to sell ly in Syracuse, the Pittsburgh mill must absorb 0 lb. or $2.40 a ton. Like comparisons may be with reference to all other basing points.

The freight rates listed in the table are the published all-rail through rates, and do not take into consideration combination rates that are available between certain shipping points. In certain sections of the country these combination rates would be lower. Semi-finished steel, such as billets, etc., takes a different freight rate. The above rates apply only on various finished steel products.

. . . CLEVELAND . . .

. . . Operations advance sharply in Cleveland and Youngstown districts . . . Pig iron deliveries greatly improved . . . Steel buying hesitant but tending upward.

CLEVELAND, Aug. 2.—Encouraged by a little better backlog position, mills in this area are scheduling modest increases in open-hearth operations and advancing rolling output just as fast as customer releases permit. The week's ingot rate for the Youngstown area and nearby cities is up 6½ points to 37½ per cent of theoretical capacity, whereas the end of a one-week vacation period at Lorain has shoved the Cleveland-Lorain district rate up 11 points to 30 per cent of capacity.

With steel refining operations as they are today, there is little or no increase noticeable in semi-finished stocks in mill yards, which therefore leads to the expectation of a gradually improving operating rate in late August and the early fall period.

Steel makers here are more than a little depressed by the combination of low steel operations, low prices, failure of steel wage rates to be revised downward, and the poor second quarter financial reports of steel companies. On top of all this is a report that automobile sheets have been cut $4 a ton in the Chicago area, a report that so far has not held up under investigation but which none the less has a tendency to disorganize the market and put both buyers and sellers on edge. While such a cut is possible in an isolated instance, sellers here are so vehemently opposed to any such action on large tonnages that it seems very unlikely that action of this nature will be publicly taken unless some producer forces a reduction by seeking tonnage at no matter what cost to the trade as a whole.

Iron Ore

Iron ore shipments from upper lake ports are gradually moving upward but still are far under the totals established last year. Aggregate deliveries during July amounted to 3,267,813 tons, against 10,704,457 tons in July, 1937, and total movement for the 1938 season up to Aug. 1 was 7,546,775 tons, as compared with a total of 34,626,751 tons moved in the 1937 season up to Aug. 1.

Pig Iron

Pig iron sellers report not only a rise in bookings, but are quite pleased with a sizeable contra-seasonal advance in shipments during July, as compared with June. Expectations are that this improvement will be further enhanced in August; for consumers' stock yards are quite barren, and motor car foundries and general merchant melters are experiencing a fillip in demand and consequently are finding it necessary to translate each new order immediately into purchases of pig iron. There is no doubt but what iron producers firmly believe that present prices are too low and will take the first opportunity to take the sting out of the $4 decline by advancing quotations $1, this action possibly coming about within the next two or three weeks if the improved demand is maintained and scrap prices continue to advance to reduce the differential between the two raw materials.

Bars, Plates and Shapes

Bar inquiry from diversified sources is showing small but steady improvement, the price being steady at 2.27½c. within the Cleveland switching area. A distinct portion of this improvement probably may be credited to automobile forging plants and tool makers, although a variety of other outlets are beginning to throw off their long inertia. Like merchant bars, reinforcing bars are also more active, although the price situation on fabricated material continues to be rather depressive. Pollak Steel Co., Cincinnati, received the week's one award, 250 tons of rail bar reinforcing for a Canton high school, but almost 1000 tons of material is currently active and scheduled for early disposition. The situation pricewise for fabricated shapes is just about as bad as it possibly could be, but fabricators are looking for the early release of considerable PWA tonnage to strengthen the situation somewhat. Sam W. Emerson, Cleveland, is low bidder on the East approach of the Main Street Bridge, but there has yet been no disposition of the 1900 tons of shapes involved. The 1200 tons of shapes for Canton technical high school went to Burger Iron Works, Akron.

Sheets and Strip

Mills are looking for purchases from autobody builders to maintain August bookings to the improved volume established in July, and are even wishfully hoping that shipments into other outlets will display a little more action. It is admitted, however, that sheet mills here will hardly get away from intermittent operation prior to early fall. Tin plate continues to move extremely slowly, in the face of a sharp reduction in food packs and a heavy consumer stock position. Both buyers and sellers are unimpressed by the $2 decline at Gary to bring that basing point to a parity with the $5.35 per base box Pittsburgh price.

Wire Products

Merchant items are seasonally quiet, but manufacturers' wire is moving in slightly better volume in anticipation of improvement in automobile demand. Jobbers are showing some tendency to round out their spotty stocks at current attractive price levels.

Bolts, Nuts and Rivets

The automobile industry will likely come into the bolt and nut market heavily during August, but demands for these commodities at the moment are erratic and in poor volume. Prices are in general quite steady. Rivet makers report the start of what is apparently an active demand, with orders coming from local construction projects, shipbuilding in the East and building construction in the Southwest. The price is fairly steady at $3.40, base.

. . . CINCINNATI . . .

. . . Demand estimated at 40% of capacity.

CINCINNATI. — Although sheet steel ordering increased further, the past week, mill interests are disposed to discount recent price disruptions as the cause. Current tonnage demand is about equal to 40 per cent of mill capacity and covers a wide consuming source, with automobile manufacturers the outstanding exception to general coverage. The motor car manufacturers, however, are currently in the market, for slightly increased quantities of material, but this is still below customary require-

ments from the source. Present market health is attributed to normal consumer needs and not to price reductions recently announced, although usual seasonal trends would bring a customary lull in steel business as the end of the summer quarter appeared.

Rod and wire mills in this area are operating at a better than average rate with demand reported good.

The pig iron market flurry, following recent price reductions, has passed, with most consumers in for their current quarterly requirements.

CANADA

. . . Prospects bright for large airplane contracts.

TORONTO, Ont. — Demand for iron and steel and their products in the Canadian markets is steady but lacking in special feature. Prospects for large airplane contracts from Britain are decidedly bright and it is expected that the British mission now in Canada soon will make known the arrangements under which the machines will be built and contracts will be awarded.

Canadian steel mills are maintaining high operating schedules, while minor curtailment is reported in the foundry trades. Agricultural implement concerns are looking forward to a big year due to the better prospects for a big western grain crop. With producers carrying large piles of pig iron, two furnaces have blown out, leaving only four active stacks in Canada and production has fallen to 46 per cent of all blast furnace capacity. Steel Co. of Canada and Dominion Steel & Coal Corp., each blew out one furnace. For June pig iron production totaled 64,375 long tons, down from 71,602 tons in May, while steel ingots and castings at 109,401 tons compare with 114,859 tons in the preceding month.

Merchant pig iron sales are holding around 1800 tons per week, about the same level as the preceding two or three weeks. Melters are showing interest in the market insofar as spot needs are concerned but no large tonnage awards have been reported and shipments are going forward in lots of one to two cars. Deliveries are being made on schedule against contract. The daily melt has tapered off to around 60 per cent, against the former peak rate of better than 70 per cent, which is a seasonal reaction.

Trading in iron and steel scrap is creating some interest and dealers are seeking supplies in all directions to fill orders for the active lines.

. . PHILADELPHIA . .

. . . July sales show 12 per cent gain over June . . . Warehouse prices slashed $5 a ton . . . Scrap market sentiment is bullish, but $14.50 remains tops for No. 1 steel.

PHILADELPHIA, Aug. 2.—The volume of sales booked in July by sellers in this district was about 12 per cent greater than the June figure. This gain is due essentially to an increase in orders from miscellaneous sources, as support from the railroads was completely lacking and the shipbuilding and automobile interests lent only very meager assistance. Increased diversification of the July business was noteworthy.

The recent climbing operating rate in this area has been in keeping with the sales trend, and as a consequence very little stocking is being done by producers. The rate for the present week is unchanged from the previous week at 27 per cent of capacity.

Although bullish sentiment continues to dominate the scrap market, mill sales are scarce and No. 1 steel is quotable this week at $14 to $14.50, unchanged from the preceding week.

Following close upon the heels of price softness in several warehouse items, warehousemen here have announced a reduction of $5 a ton on most hot rolled items, and a revision in the quantity bracket of 500 to 1999 lb. to 400 to 1999 lb.

Pig Iron

Despite the tendency of sellers to treat higher price schedules as a likelihood in the fall, foundries here continue to limit their purchases to iron required for immediate use. Adjustments in melting schedules due to vacations and a slight slackening in the activity of furnace makers have brought the rate of operations in the current week slightly below the preceding week, but a definite upturn is looked for within the next three or four weeks.

Warehouse Business

Local warehouses have announced that effective July 30 the quantity bracket that had been from 500 to 1999 lb. is now 400 to 1999 lb., bringing Philadelphia in line with the general practice in other cities. Simultaneously with the change in the quantity brackets, prices on most hot rolled items, as bars, shapes, plates, sheets, etc., have been lowered $5 a ton in all quantity ranges except 100 lb. and under. Galvanized sheets, tie steel, stringer channels and Swedish iron are the chief items not affected by the cut.

Plates and Shapes

New business is a shade better, due partially to the release of some small ship tonnages, but on the whole plate sales have not kept pace with the improvement in other lines. Orders for miscellaneous parts for the freight cars to be built by the Pennsylvania have been seeping out in the past week, but the tonnages thus far released are insignificant. The plate requirements will probably be allocated within the next few days with mills in this district sharing heavily in the business. The plate tonnage involved is probably between 3000 and 5000 tons, depending upon the amount of material in stock at the Altoona yards that can be used in constructing the cars. Plans for the construction of the new Harrisburg-Pittsburgh highway, which will take about 9000 tons of shapes, are being rushed to completion. Present plans call for the construction of around 78 small I-beam bridges, which, together with several viaducts, will cost about $4,000,000. It is doubtful if any of this material will reach the rolling stage this year. Guard rail and fence expenditures will total approximately $1,000,000. Structural awards for the week are very small, the heaviest being 240 tons of supports for the Sun Oil Co.'s plant at Toledo, awarded to Belmont Iron Works. No new inquiries were reported.

Reinforcing Bars

Due to the quietude that prevails in the construction field at present, prices are showing the effect of competition, with concessions up to $3 a ton reported being made on fair sized lots. With private enterprise dormant, what activity there is is entirely of a public nature.

Sheets and Strip

With one large radio builder farming out operations due to labor troubles, and the activity of furnace makers on the downgrade, sheet and strip sales here have not shown the improvement reported in other consuming centers, although the July total was about 15 per cent above the preceding month's total. There has been some work of an experimental nature done by local parts builders on the 1939 model cars, but no buying for production is expected until late August.

Imports

Five tons of ferrochrome from Sweden and 150 tons of ferromanganese from Holland were received here during the past week.

. . . . BUFFALO. . . .

. . . Output gains slightly in upstate New York.

BUFFALO, Aug. 2.—Ingot production in this district has again been increased slightly with the charging of an additional furnace by Wickwire-Spencer. Operating at the same rate as last week is Republic Steel with three and Bethlehem's Lackawanna plant with 12.

There is little or no forward buying. Flat-rolled products are fairly active and show promise of a pick-up. Automotive releases are coming in at about the same rate as the last two or three weeks but are expected in greater volume from the West in the near future.

The recent improvement in bar demand has been due mainly to sporadic buying. Although pig-iron demand remains below normal there is a slight increase in foundry operations and shipments. Coming weeks are expected to see better business with the beginning of automotive orders.

Republic Loss Is $2,856,317 for Quarter

REPUBLIC STEEL CORP. reports for the second quarter of 1938 after all charges, a net loss of $2,856,317, according to the quarterly income statement released July 28. This compares with net loss of $3,062,564 for the first quarter of 1938.

For the six months ended June 30, 1938, net loss was $5,918,881 compared with net profit of $6,055,314 in the same period of 1937. In the second quarter of 1937 Republic had a net profit of $487,251.

. . . . NEW YORK. . . .

. . . Inquiries fall off as consumers reduce or suspend schedules for summer vacations . . . July bookings top June for some producers.

NEW YORK, Aug. 2.—Steel bookings in for July in this area were slightly heavier than in June for some companies, while a tapering off in business during the last four or five days probably kept the tonnage for last month under the June total for others.

Summer shutdowns for vacations during the first half of August apparently is an important factor in the current leveling off of business. Inquiries during the last few days have fallen off rather sharply, reflecting the shutdowns of fabricating plants.

Miscellaneous buying continues to be the chief support for order books of district sales offices.

Meanwhile in some quarters an early reduction in steel wages to pare down heavy losses anticipated for many producers in the third quarter are being forecast. Throughout the trade are reports of pay reductions in plants of steel producers and consumers. So far these wage cuts have been confined to small plants and, in some instances, apparently have been taken with the consent of steel unions. At Washington the Public Contracts Board has indicated that its decision in the case by which the SWOC seeks to freeze steel wages probably will not be handed down for a month.

Pig Iron

Shipments during July showed a considerable improvement over those of June. Another encouraging factor is the fact that some releases have been coming through for iron on old contract from foundries that had not been heard from for two to three months. A definite improvement in foundry melt seems to be particularly in evidence in New England. New ordering is light, and talk of a price increase has died down in the face of probable wage cuts in the steel industry. Already some Eastern foundries have begun to cut wages, quite openly.

Viele, Blackwell & Buck, of New York, representing Japanese interests, have placed orders for 5000 tons of basic and 5000 tons of foundry pig iron within the last few days. Export inquiries are largely from Scandinavian countries, from which a 500-ton order was received a fortnight ago.

Plates and Sheets

At least one seller indicates a slight improvement in plate orders, part of the new business coming from jobbers who had not ordered in months. The quantities involved are somewhat higher, though still averaging less than a carload on miscellaneous orders.

An offer coming from a European source to buy ship plates at less than the present cartel price of 1.80c. per lb. f.a.s. has found no taker among the plate mills on the Eastern seaboard.

Sheet volume in July was 10 to 15 per cent better than in June, but little enthusiasm is evident among sheet sellers at the moment. A few inquiries of several hundred tons apiece are out and may be closed this week. Stove makers continue to be the most active buyers of enameling sheets.

. . SAN FRANCISCO. .

. . . Heavy purchases of wire products reported in West.

SAN FRANCISCO, Aug. 1.—Extensive purchases of wire products and merchant stocks by wholesalers and distributers on the Pacific Coast are reported by mill agents, following the third quarter price reductions, and to prepare for the Government spending program and anticipated fall demand. City, county and state projects of sizable magnitude are also being pushed by public officials to secure Federal allotments and get public money into circulation. The purchases and specifications of the United States Engineers for major reclamation projects continue to be the main actual activity.

Opening of bids on the Post Office Terminal Annex at Los Angeles by the Public Buildings Bureau of the Treasury Department was postponed from July 19 to Aug. 2. This involves from 2000 to 5000 tons of shapes.

Bids have been called on Aug. 23 for a $732,000 county bridge between Oakland and Alameda, Cal., involving approximately 1600 tons of shapes and bars.

Bids to the United States Engineers office at Los Angeles for over 4000 tons of steel reinforcing bars under Project 30 developed the following range:

Columbia Steel Co. (U. S. Steel Corp. subsidiary)	$168,925
Bethlehem Steel Co.	172,222
Judson Steel Corp.	186,246
L. A. Iron & Steel Corp.	188,274
Truscon Steel Co.	189,615

All bids were f.o.b. jobsite. The Sheffield Steel Corp. submitted an irregular bid on unit items without a total.

The contracting firm of Lindgren & Swinerton, of Los Angeles, has been awarded a $3,000,000 contract by the D. Herbert Hostetter Estate for construction of a residential subdivision involving 142 buildings on a 72-acre tract east of Los Angeles. A $3,000,000 business district contract will be awarded later.

Pacific Constructors, Inc., of Los Angeles, contractor for the Shasta Dam of the Central Valley water project, California, announces that the purchasing office will be located at Redding and opened Aug. 15.

After a five weeks' strike the employees of the American Can Co. have returned to their jobs in the various plants throughout California. Previously it had been announced that the tin mill of the Columbia Steel Co. at Pittsburgh would be closed and the lighting of an additional open hearth furnace delayed. Thus the laying off of 500 steel workers was avoided by the final settlement.

At Seattle a $1,500,000 grant for water works extension and improvement involves 15 miles of cast iron pipe. It is expected that work will start Sept. 1 on this ultimate $3,000,000 project. In Honolulu a $2,000,000 city and county water project is under way, partly paid through PWA grants.

. . .NON-FERROUS. . .

. . . Domestic copper quotations raised 1/8c. . . . Lead sales gain 50 per cent in the week; prices unchanged . . . Tin prices touch new high for the year, but buyers show no interest.

NEW YORK, Aug. 2.—Spurred on by the bullish undertone of the foreign markets in the early part of the past week and the continued good volume of domestic demand, the domestic price of electrolytic copper was raised 1/8c. on Friday to a basis of 10.125c. per lb., delivered Connecticut Valley. The Bank Holiday in London yesterday cut short the steady rise of the foreign price which had brought it up as high as 10.45c. for a brief period last week. The foreign price this morning was in the neighborhood of 10.35c. per lb., c.i.f., usual base ports, with very little buying interest in evidence. Week-end sales of 5790 tons raised the domestic total to 123,700 tons for July, with over 100,000 tons of that amount carrying an October delivery date.

Zinc

The market showed no new trend in the past week as the weekly sales volume remains around the 5000-ton mark. Undelivered tonnages at the end of the week totaled 38,210 tons. Quotations are firm and unchanged at 5.14c. per lb., New York, for prime Western metal. Despite the surface listlessness of the market, the undertone remains very strong, due chiefly to the reticence of sellers to book anything but the demands of their regular customers. It is still the producers' opinion that the present price of zinc is not equal to production costs and until at least a parity between these two factors is reached, they do not intend to press for orders.

Lead

Sales in the past week were about 50 per cent greater than the preceding week, with practically all the major outlets, including the battery makers, taking part. This increase in sales, together with the fact that July's shipments will undoubtedly be shown to have been in excess of the month's production, thus causing a further reduction in stocks, has added considerable strength to the present price level of 4.90c. per lb., New York. Although the September books were opened yesterday, very little metal for this month has as yet been put on the books. In a rather quiet market, prices in London were down slightly this morning, spot metal being quoted at 3.19c. per lb.

Tin

Business in the past week showed no improvement over the dull conditions that have characterized the tin market for some time past. A few carloads were bought, and some first quarter metal was covered, but the aggregate tonnages involved were insignificant. Buoyed by a firm stock market in the fore part of the week, prices here rose as high as 44.25c. during the week, but the lack of support from abroad and the weakness that has currently developed in stock prices caused Straits prices today to react to 43.70c. per lb., New York. London prices were also off this morning, cash standards being priced at £194 and three months metal at £195 5s. World visible supplies in July showed an increase of 2036 tons, with 1183 tons of this total charged to the Arnhem smelter.

The Week's Prices. Cents Per Pound for Early Delivery

	July 27	July 28	July 29	July 30	Aug. 1	Aug. 2
Electrolytic copper, Conn.*	10.00	10.00	10.125	10.125	10.125	10.125
Lake copper, N. Y.	10.125	10.125	10.25	10.25	10.25	10.25
Straits tin, spot, New York	43.65	43.50	44.25	....	43.90	43.70
Zinc, East St. Louis	4.75	4.75	4.75	4.75	4.75	4.75
Zinc, New York	5.14	5.14	5.14	5.14	5.14	5.14
Lead, St. Louis	4.75	4.75	4.75	4.75	4.75	4.75
Lead, New York	4.90	4.90	4.90	4.90	4.90	4.90

*Delivered Connecticut Valley; price ¼c. lower delivered in New York.
Aluminum, virgin, 99 per cent plus 20.00c.-21.00c. a lb., delivered.
Aluminum No. 12 remelt No. 2 standard, in carloads, 19.00c. to 19.50c. a lb., delivered.
Nickel, electrolytic, 35c. to 36c. a lb. base refinery, in lots of 2 tons or more.
Antimony, Asiatic, 14.00c. a lb., prompt, f.o.b., New York.
Antimony, American, 10.75c. per lb., prompt shipment, New York.
Quicksilver, $80.00 to $81.00 per flask of 76 lb.
Brass ingots, commercial 85-5-5-5, 10.75c. a lb., less carload, delivered in Middle West ¼c. a lb. is added on orders for less than 40,000 lb.

From New York Warehouse

Delivered Prices, Base per Lb.

Tin, Straits pig	44.75c. to 45.75c.
Tin, bar	46.75c. to 47.75c.
Copper, Lake	11.25c. to 12.25c.
Copper, electrolytic	11.00c. to 12.00c.
Copper, castings	10.50c. to 11.50c.
*Copper sheets, hot-rolled	18.25c.
*High brass sheets	16.75c.
*Seamless brass tubes	19.50c.
*Seamless copper tubes	18.75c.
*Brass rod	12.75c.
Zinc, slabs	6.25c. to 7.25c.
Zinc, sheets (No. 9), casks, 1200 lb. and over	10.50c.
Lead, American pig	5.50c. to 6.50c.
Lead, bar	6.25c. to 6.625c.
Lead, sheets, cut	7.75c.
Antimony, Asiatic	14.75c. to 15.75c.
Alum., virgin, 99 per cent plus	22.50c. to 24.00c.
Alum., No. 1 for remelting, 98 to 99 per cent.	19.50c. to 21.00c.
Solder, ½ and ½	29.25c. to 30.25c.
Babbitt metal, commercial grade	20.00c. to 50.00c.

*These prices, which are also for delivery from Chicago and Cleveland warehouses, are quoted with the following percentages allowed off for extras; on copper sheets, 33 1/3; on brass sheets and rods, 40, and on brass and copper tubes, 25.

From Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits, pig	48.75c.
Tin, bar	50.75c.
Copper, Lake	11.125c. to 11.375c.
Copper, electrolytic	11.125c. to 11.375c.
Copper, castings	10.925c.
Zinc, slabs	7.50c. to 7.75c.
Lead, American pig	5.40c. to 5.65c.
Lead, bar	8.50c.
Antimony, Asiatic	17.75c. to 18.00c.
Babbitt metal, medium grade	21.50c.
Babbitt metal, high grade	51.75c.
Solder, ½ and ½	28.50c.

Old Metals Per Lb., New York

Buying prices are paid by dealers for miscellaneous lots from smaller accumulators and selling prices are those charged to consumers after the metal has been prepared for their uses. (All prices are nominal.)

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, hvy. crucible	8.00c.	8.75c.
Copper, hvy. and wire	7.00c.	7.50c.
Copper, light and bottoms	6.25c.	6.50c.
Brass, heavy	4.25c.	4.75c.
Brass, light	3.25c.	4.00c.
Hvy. machine composition	6.75c.	8.25c.
No. 1 yel. brass turnings	4.25c.	4.75c.
No. 1 red brass or compos. turnings	6.25c.	6.75c.
Lead, heavy	3.50c.	3.875c.
Cast aluminum	6.25c.	7.50c.
Sheet aluminum	10.75c.	12.25c.
Zinc	2.125c.	3.375c.

IRON AND STEEL SCRAP

. . . Railroad steel showing considerable strength . . . Composite up 25c. to $14.33, high for 1938.

AUG. 2.—Largely because of the strength exhibited in railroad steel at Chicago, the whole list is up 50c. there. A fair tonnage of railroad steel was also purchased at Pittsburgh at $16.50, 50c. above last week's quotation. A few thousand tons of No. 1 steel was purchased at $15.75, representing an advance of 25c. Steel making grades at Philadelphia are unchanged, with most of the transactions between dealers and brokers. As a result, the composite price of the No. 1 grade has advanced 25c., to $14.33, a new high for the year and equal to the level of early November, when prices were teetering on the brink just before the sharp plunge downhill in the middle of that month.

Buying prices at Cincinnati are slightly stronger and material is coming out more freely, but in many districts prices are unchanged from last week — at Cleveland, Youngstown, Buffalo and Detroit. At Philadelphia and New York, heavy breakable cast and stove plate are up 50c., on the basis of small mill transactions. Export buying prices at New York are unchanged, after a substantial advance last week, but prices at Boston shot up $1 to re-establish the traditional differential prevailing between these two buying points because of differences in methods of handling scrap.

Pittsburgh

Late last week one consumer, before temporarily going out of the market, purchased a few thousand tons of No. 1 heavy melting steel at $15.75 a ton, making the market quotable this week at $15.25 to $15.75, up 25c. from last week's price. A fair tonnage of railroad steel was also bought in the past week at $16.50. Within the past few days, activity has subsided and at least one consumer has been offered No. 1 steel at $15.50. Brokers are paying $15 and $15.25 in covering recent No. 1 steel orders.

Chicago

About 2500 tons of railroad steel was sold last week for $14.56 on track, but a local consumer is said to have rejected an offering of heavy melting steel at $14. Brokers are paying $13.50 to cover their short sales. Present outlook for increased operations is not good, though stabilization near present levels is likely. The entire list is up 50c. a ton, because of sentiment and strength of railroad steel, No. 1 being quoted at $13 to $13.50 a gross ton delivered.

Philadelphia

Although the undertone of the market is distinctly bullish, mill sales are rare, most transactions in the past week being of a dealer-broker nature. Steel making grades are unchanged from last week with No. 1 at $14 to $14.50, but some cast grades have been marked up on the basis of several small sales made in the past week. Heavy breakable cast is now quotable at $15.50 to $16 and stove plate (steel works) at $13 to $13.50.

Buffalo

With No. 1 heavy melting steel selling at $13 to $13.50 a ton, the scrap market has a very strong underlying current. The principal consumer in this district continues out of the market with a reserve sufficient for immediate needs at present rate of operations and there have been no other sales reported. All bids are being rejected by dealers and the future market is looked to with optimism.

Cleveland

A bullish undertone persists among selling circles here, but prices remain unchanged. Old contracts are about cleaned up, and brokers are delivering scattered day-to-day orders at going price levels. So far, most mills here and in the Youngstown area are resting on fair size inventories, and are not likely to revise their current hesitant purchasing attitude until operating rates shift into somewhat higher brackets, which is unlikely until toward the end of August. Merchant foundries and automobile foundries, both experiencing a mild uplift in activity, are coming into the market for pig iron and cast scrap, both of which are fairly attractive speculative items at the moment. Cast scrap grades already have reacted by advancing moderately, and the market is looking forward to a rather steady, though spotty, improvement in the price situation in the near future.

St. Louis

Dealers continue to push up their prices on scrap iron in an effort to obtain material with which to fill orders placed with them several months ago. The advances range from 25c. to $2 a ton for melting grades. Little scrap is coming in from the country dealers, and railroad lists available to local dealers are comparatively small.

Cincinnati

With dealers bids at a level where material is beginning to come out, advances in quotations have slowed down. The trade indicates that a consumer who took some special No. 1 steel at $15.30 a week ago is now backing away from offerings at $14.50. Trading among the dealers is a trifle more active.

Detroit

The Detroit scrap market has retained its strength and has shown minor increases in the prices paid for scrap on automotive lists during the last week. However the tonnages sold were so light that there is difficulty justifying any increase in market level.

New York

The sharp upswing in export buying prices that had taken place in recent weeks has been halted. The rise of $1 in No. 1 steel last week and $2 in stove plate has been sufficient to draw out material heretofore held back. Some yards that could employ their trucks only three days a week, used them five days last week hauling in old material. A number of demolition jobs on large industrial buildings is also bringing more structural scrap on the market. Domestic shipments into eastern Pennsylvania are going forward a few carloads at a time. Buying prices for material on cars has been advanced 50c. on heavy breakable cast and stove plate.

Boston

Although there has been a slight pickup in the movement of material to Pennsylvania consuming points, the strength of the export market on heavy melting steel continues to dominate. Compared with a week ago export steel is $1 a ton higher, and compared with a month ago, $2. Material is still coming on the market slowly, higher quotations notwithstanding. July exports were confined to Germany, Rotterdam, Japan and Italy. As anticipated, bundled skeleton is $1 a ton higher, and slightly higher prices are being paid for shafting and breakable cast.

. . BIRMINGHAM . .

. . . Two stacks blown in . . . Ingot output up.

BIRMINGHAM.—Two more blast furnaces have resumed production. Tennessee Coal, Iron & R. R. Co. has added two, Fairfield No. 6 and Ensley No. 3. This is an increase of three in the past ten days, and the total number of active stacks this week is seven. Tennessee Coal, Iron & R. R. Co. has three; Woodward Iron Co., two; Republic Steel Corp., one and Sloss-Sheffield Steel & Iron Co., one.

The steel market seems to be growing stronger and bookings last week were very good. New tonnage included plates, concrete bars, cotton ties, roofing sheets and wire products, and also some miscellaneous business from the railroads.

The pig iron market is also firmer. July shipments were much better than those of June.

Operations have been started at the new Mobile, Ala., plant of the Aluminum Ore Co.

Iron and Steel Scrap Prices

PITTSBURGH

Per gross ton delivered to consumer:	
No. 1 hvy. mltng. steel	$15.25 to $15.75
Railroad hvy. mltng.	16.00 to 16.50
No. 2 hvy. mltng. steel	14.00 to 14.50
Scrap rails	16.00 to 16.50
Rails 3 ft. and under	16.50 to 17.00
Comp. steel	15.25 to 15.75
Hand bundled sheets	14.25 to 14.75
Hvy. steel axle turn.	14.00 to 14.50
Machine shop turn	9.50 to 10.00
Short shov. turn	9.50 to 10.00
Mixed bor. & turn	7.50 to 8.00
Cast iron borings	7.50 to 8.00
Cast iron carwheels	14.50 to 15.00
Hvy. breakable cast	12.50 to 13.00
No. 1 cupola cast	15.00 to 15.50
RR. knuckles & cplrs.	17.00 to 17.50
Rail coil & leaf springs	17.00 to 17.50
Rolled steel wheels	17.00 to 17.50
Low phos. billet crops	17.50 to 18.00
Low phos. punchings	16.00 to 16.50
Low phos. plate	16.00 to 16.50

PHILADELPHIA

Per gross ton delivered to consumer:	
No. 1 hvy. mltng. steel	$14.00 to $14.50
No. 2 hvy. mltng. steel	12.50 to 13.00
Hydraulic bund., new	14.00 to 14.50
Hydraulic bund., old	10.50 to 11.00
Steel rails for rolling	17.00 to 17.50
Cast iron carwheels	16.50 to 17.00
Hvy. breakable cast	15.50 to 16.00
No. 1 cast	16.00 to 16.50
Stove plate (steelwks.)	13.00 to 13.50
Railroad malleable	15.00 to 15.50
Machine shop turn	8.00 to 8.50
No. 1 blast furnace	6.50 to 7.00
Cast borings	6.50 to 7.00
Heavy axle turnings	10.00 to 10.50
No. 1 low phos. hvy	16.50 to 17.00
Couplers & knuckles	16.50 to 17.00
Rolled steel wheels	16.50 to 17.00
Steel axles	20.00 to 20.50
Shafting	19.00 to 19.50
No. 1 RR. wrought	15.00 to 15.50
Spec. iron & steel pipe	12.00 to 12.50
No. 1 forge fire	10.50 to 11.00
Cast borings (chem.)	9.50 to 10.00

CHICAGO

Delivered to Chicago district consumers:

	Per Gross Ton
Hvy. mltng. steel	$13.00 to $13.50
Auto. hvy. mltng. steel alloy free	11.50 to 12.00
No. 2 auto. steel	11.00 to 11.50
Shoveling steel	13.00 to 13.50
Factory bundles	12.25 to 12.75
Dealers' bundles	11.50 to 12.00
Drop forge flashings	10.25 to 10.75
No. 1 busheling	11.00 to 11.50
No. 2 busheling, old	5.25 to 5.75
Rolled carwheels	15.50 to 16.00
Railroad tires, cut	16.00 to 16.50
Railroad leaf springs	16.00 to 16.50
Steel coup. & knuckles	15.00 to 15.50
Axle turnings	12.00 to 12.50
Coil springs	16.50 to 17.00
Axle turn. (elec.)	12.50 to 13.00
Low phos. punchings	16.00 to 16.50
Low phos. plates 12 in. and under	15.00 to 15.50
Cast iron borings	6.50 to 7.00
Short shov. turn	7.50 to 8.00
Machine shop turn	6.50 to 7.00
Rerolling rails	16.50 to 17.00
Steel rails under 3 ft.	15.50 to 16.00
Steel rails under 2 ft.	16.00 to 16.50
Angle bars, steel	14.00 to 14.50
Cast iron carwheels	14.50 to 15.00
Railroad malleable	14.25 to 14.75
Agric. malleable	11.50 to 12.00
	Per Net Ton
Iron car axles	19.00 to 19.50
Steel car axles	18.50 to 19.00
No. 1 RR. wrought	11.25 to 11.75
No. 2 RR. wrought	11.75 to 12.25
Locomotive tires	16.50 to 17.00
Pipes and flues	9.50 to 10.00
No. 1 machinery cast	13.00 to 13.50
Clean auto. cast	12.00 to 12.50
No. 1 railroad cast	12.75 to 13.25
No. 1 agric. cast	11.50 to 12.00
Stove plate	9.50 to 10.00
Grate bars	9.50 to 10.00
Brake shoes	10.00 to 10.50

YOUNGSTOWN

Per gross ton delivered to consumer:	
No. 1 hvy. mltng. steel	$13.00 to $13.50
Hydraulic bundles	12.50 to 13.00
Machine shop turn	8.50 to 9.00

CLEVELAND

Per gross ton delivered to consumer:	
No. 1 hvy. mltng. steel	$12.00 to $12.50
No. 2 hvy. mltng. steel	11.00 to 11.50
Comp. sheet steel	11.25 to 11.75
Light bund. stampings	8.50 to 9.00
Drop forge flashings	10.00 to 10.50
Machine shop turn	6.00 to 6.50
Short shov. turn	6.75 to 7.25
No. 1 busheling	10.50 to 11.00
Steel axle turnings	10.00 to 10.50
Low phos. billet and bloom crops	17.00 to 17.50
Cast iron borings	6.00 to 6.50
Mixed bor. & turn	6.00 to 6.50
No. 2 busheling	6.00 to 6.50
No. 1 cast	14.50 to 15.00
Railroad grate bars	9.50 to 10.00
Stove plate	9.00 to 9.50
Rails under 3 ft.	16.50 to 17.00
Rails for rolling	14.50 to 15.00
Railroad malleable	14.50 to 15.00
Cast iron carwheels	15.00 to 15.50

BUFFALO

Per gross ton delivered to consumer:	
No. 1 hvy. mltng. steel	$13.00 to $13.50
No. 2 hvy. mltng. steel	11.00 to 11.50
Scrap rails	15.00 to 15.50
New hvy. bndled sheets	11.00 to 11.50
Old hydraul. bundles	9.50 to 10.00
Drop forge flashings	11.00 to 11.50
No. 1 busheling	11.00 to 11.50
Hvy. axle turnings	10.50 to 11.00
Machine shop turn	6.50 to 7.00
Knuckles & couplers	16.50 to 17.00
Coil & leaf springs	16.50 to 17.00
Rolled steel wheels	16.00 to 16.50
Low phos. billet crops	15.50 to 16.00
Shov. turnings	6.50 to 7.00
Mixed bor. & turn	6.50 to 7.00
Cast iron borings	6.50 to 7.00
Steel car axles	16.50 to 17.00
No. 1 machinery cast	15.00 to 15.50
No. 1 cupola cast	14.50 to 15.00
Stove plate	12.00 to 12.50
Steel rails under 3 ft.	17.50 to 18.00
Cast iron carwheels	13.50 to 14.00
Railroad malleable	14.50 to 15.00
Chemical borings	8.50 to 9.00

ST. LOUIS

Dealers' buying prices per gross ton delivered to consumer:

Selected hvy. melting	$12.50 to $13.00
No. 1 hvy. melting	11.50 to 12.00
No. 2 hvy. melting	11.00 to 11.50
No. 1 locomotive tires	14.00 to 14.50
Misc. stand. sec. rails	14.00 to 14.50
Railroad springs	14.50 to 15.00
Bundled sheets	5.50 to 6.00
No. 1 busheling	5.50 to 6.00
Cast bor. & turn	3.00 to 3.50
Machine shop turn	3.00 to 3.50
Heavy turnings	8.00 to 8.50
Rails for rolling	15.00 to 15.50
Steel car axles	17.00 to 17.50
Iron car axles	19.50 to 20.00
No. 1 RR. wrought	8.00 to 8.50
No. 2 RR. wrought	11.50 to 12.00
Steel rails under 3 ft.	14.50 to 15.00
Steel angle bars	13.75 to 14.25
Cast iron carwheels	12.00 to 12.50
No. 1 machinery cast	12.50 to 13.00
Railroad malleable	12.00 to 12.50
No. 1 railroad cast	10.50 to 11.00
Stove plate	8.00 to 8.50
Grate bars	9.00 to 9.50
Brake shoes	9.00 to 9.50

CINCINNATI

Dealers' buying prices per gross ton at yards:

No. 1 hvy. mltng. steel	$11.75 to $12.25
No. 2 hvy. mltng. steel	9.50 to 10.25
Scrap rails for mltng.	15.75 to 16.25
Loose sheet clippings	6.75 to 7.25
Hydrau. b'ndled sheets	10.75 to 11.25
Cast iron borings	3.75 to 4.25
Machine shop turn	4.25 to 4.75
No. 1 busheling	8.50 to 9.00
No. 2 busheling	3.25 to 3.75
Rails for rolling	17.75 to 18.25
No. 1 locomotive tires	14.50 to 15.00
Short rails	18.25 to 18.75
Cast iron carwheels	13.00 to 13.50
No. 1 machinery cast	12.50 to 13.00
No. 1 railroad cast	11.50 to 12.00
Burnt cast	7.50 to 8.00
Stove plate	7.50 to 8.00
Agricul. malleable	12.00 to 12.50
Railroad malleable	15.00 to 15.50
Mixed hvy. cast.	10.00 to 10.50

BIRMINGHAM

Per gross ton delivered to consumer:	
Hvy. melting steel	$12.00 to $12.50
Scrap steel rails	14.00 to 14.50
Short shov. turnings	7.50 to 8.10
Stove plate	9.00 to 10.00
Steel axles	15.00 to 16.00
Iron axles	15.00 to 16.00
No. 1 RR. wrought	10.00
Rails for rolling	15.00 to 16.00
No. 1 cast	14.50 to 15.00
Tramcar wheels	14.50

DETROIT

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel	$10.00 to $10.50
No. 2 hvy. mltng. steel	8.50 to 9.00
Borings and turnings	5.50 to 6.00
Long turnings	6.00 to 6.50
Short shov. turnings	7.50 to 8.00
No. 1 machinery cast	11.50 to 12.00
Automotive cast	11.50 to 12.00
Hvy. breakable cast	9.00 to 9.50
Hydraul. comp. sheets	10.50 to 11.00
Stove plate	6.75 to 7.25
New factory bushel	10.00 to 10.50
Old No. 2 busheling	2.50 to 3.00
Sheet clippings	7.50 to 8.00
Flashings	8.00 to 8.50
Low phos. plate scrap	11.00 to 11.50

NEW YORK

Dealers' buying prices per gross ton on cars:

No. 1 hvy. mltng. steel	$10.00 to $10.50
No. 2 hvy. mltng. steel	8.50 to 9.00
Hvy. breakable cast	11.50 to 12.00
No. 1 machinery cast	11.50 to 12.00
No. 2 cast	9.00 to 9.50
Stove plate	9.00 to 9.50
Steel car axles	20.00 to 20.50
Shafting	15.00 to 15.50
No. 1 RR. wrought	11.00 to 11.50
No. 1 wrought long	9.50 to 10.00
Spec. iron & steel pipe	8.50 to 9.00
Rails for rolling	16.00 to 16.50
Clean steel turnings*	3.50 to 4.00
Cast borings*	3.00 to 3.50
No. 1 blast furnace	3.00 to 3.50
Cast borings (chem.)	9.50 to 10.00
Unprepared yard scrap	4.50 to 5.00
Light iron	3.00 to 3.50
Per gross ton, delivered local foundries:	
No. 1 machn. cast	$13.00 to $14.00
No. 2 cast	10.50 to 11.00

*$1.50 less for truck loads.

BOSTON

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel	$13.00 to $13.50
Scrap rails	13.00 to 13.50
No. 2 steel	12.00 to 12.50
Breakable cast	10.25 to 10.50
Machine shop turn	3.25 to 3.40
Mixed bor. & turn	3.30
Bun. skeleton long	6.75
Shafting	14.00 to 14.25
Cast bor. chemical	5.50 to 5.75
Per gross ton delivered consumers' yards:	
Textile cast	$12.00 to $12.50
No. 1 machine cast	12.00 to 12.50

PACIFIC COAST

Per gross ton delivered to consumer:	
No. 1 hvy. mltng. steel	$11.65 to $12.15
No. 2 hvy. mltng. steel	10.65 to 11.15

CANADA

Dealers' buying prices at their yards, per gross ton:

	Toronto	Montreal
No. 1 hvy. mltng. steel	$10.50	$9.50
No. 2 hvy. mltng. steel	9.50	8.50
Mixed dealers steel	8.50	7.50
Scrap pipe	8.50	7.50
Steel turnings	7.50	7.00
Cast borings	8.50	7.50
Machinery cast	15.00	14.00
Dealers cast	13.00	12.00
Stove plate	11.00	10.50

EXPORT

Dealers' buying prices per gross ton:

New York, truck lots, delivered, barges	
No. 1 hvy. mltng. steel	$11.00 to $11.50
No. 2 hvy. mltng. steel	9.50 to 10.00
No. 2 cast	10.00 to 11.00
Stove plate	9.00 to 10.00
Boston on cars at Army Base or Mystic Wharf	
No. 1 hvy. mltng. steel	$12.50
No. 2 hvy. mltng. steel	11.50
Rails (scrap)	$12.50 to 12.75
Philadelphia, delivered alongside boats, Port Richmond	
No. 1 hvy. mltng. steel	Nominal
No. 2 hvy. mltng. steel	Nominal

PRICES ON FINISHED AND SEMI-FINISHED IRON AND STEEL

SEMI-FINISHED STEEL

Billets, Blooms and Slabs

Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham, Sparrows Point (Rerolling only). Prices delivered Detroit are $2 higher. F.o.b. Duluth, billets only, $2 higher.

	Per Gross Ton
Rerolling	$34.00
Forging quality	40.00

Sheet Bars

Pittsburgh, Chicago, Cleveland, Youngstown, Buffalo, Canton, Sparrows Point, Md.

	Per Gross Ton
Open-hearth or bessemer	$34.00

Skelp

Pittsburgh, Chicago, Youngstown, Coatesville, Pa., Sparrows Point, Md.

	Per Lb.
Grooved, universal and sheared	1.90c.

Wire Rods

(No. 5 to 9/32 in.)

	Per Gross Ton
Pittsburgh, Chicago or Cleveland	$43.00
Worcester, Mass.	45.00
Birmingham	43.00
San Francisco	52.00

Rods over 9/32 in. or 47/64 in., inclusive, $5 a ton over base.

SOFT STEEL BARS

	Base per Lb.
Pittsburgh, Chicago, Gary, Cleveland, Buffalo and Birmingham	2.25c.
Detroit, delivered	2.35c.
Duluth	2.35c.
Philadelphia delivered	2.57c.
New York	2.59c.
On cars dock Gulf ports	2.60c.
On cars dock Pacific ports	2.85c.

RAIL STEEL BARS

(For merchant trade)

Pittsburgh, Chicago, Gary, Cleveland, Buffalo, Birmingham	2.10c.
On cars dock Tex. Gulf ports	2.45c.
On cars dock Pacific ports	2.70c.

BILLET STEEL REINFORCING BARS

(Straight lengths as quoted by distributers)

Pittsburgh, Chicago, Gary, Birmingham, Buffalo, Cleveland, Youngstown or Sparrows Pt.	2.05c.
Detroit, delivered	2.15c.
On cars dock Tex. Gulf ports	2.40c.
On cars dock Pacific ports	2.50c.

RAIL STEEL REINFORCING BARS

(Straight lengths as quoted by distributers)

Pittsburgh, Chicago, Gary, Buffalo, Cleveland, Youngstown or Birmingham	1.90c.
Detroit, delivered	2.00c.
On cars dock Tex. Gulf ports.	2.25c.
On cars dock Pacific ports	2.35c.

IRON BARS

Chicago and Terre Haute	2.15c.
Pittsburgh (refined)	3.60c.

COLD FINISHED BARS AND SHAFTING*

	Base per Lb.
Pittsburgh, Buffalo, Cleveland, Chicago and Gary	2.70c.
Detroit	2.75c.

* In quantities of 10,000 to 19,999 lb.

PLATES

	Base per Lb.
Pittsburgh, Chicago, Gary, Birmingham, Sparrows Point, Cleveland, Youngstown, Coatesville, Claymont, Del.	2.10c.
Philadelphia, del'd	2.15c.
New York, del'd	2.29c.
On cars dock Gulf ports	2.45c.
On cars dock Pacific ports	2.70c.
Wrought iron plates, P't'g	3.80c.

FLOOR PLATES

Pittsburgh or Chicago	3.35c.
New York, del'd	3.71c.
On cars dock Gulf ports	3.70c.
On cars dock Pacific ports	3.95c.

STRUCTURAL SHAPES

	Base per Lb.
Pittsburgh, Chicago, Gary, Buffalo, Bethlehem or Birmingham	2.10c
Philadelphia, del'd	2.215c.
New York, del'd	2.27c.
On cars dock Gulf ports	2.45c.
On cars dock Pacific ports	2.70c.

STEEL SHEET PILING

	Base per Lb.
Pittsburgh, Chicago or Buffalo	2.40c.
On cars dock Gulf ports	2.85c.
On cars dock Pacific ports	2.90c.

RAILS AND TRACK SUPPLIES

F.o.b. Mill

Standard rails, heavier than 60 lb., per gross ton	$42.50
Angle bars, per 100 lb	2.80

F.o.b. Basing Points

Light rails (from billets) per gross ton	$40.00
Light rails (from rail steel) per gross ton	39.00

	Base per Lb.
Spikes	3.15c.
Tie plates, steel	2.30c.
Tie plates, Pacific Coast ports.	2.40c.
Track bolts, to steam railroads	4.35c.
Track bolts, to jobbers, all sizes (per 100 counts)	65-5 per cent off list

Basing points on light rails are Pittsburgh, Chicago and Birmingham; on spikes and tie plates, Pittsburgh, Chicago, Portsmouth, Ohio, Weirton, W. Va., St. Louis, Kansas City, Minnequa, Colo., Birmingham and Pacific Coast ports; on tie plates alone, Steelton, Pa., Buffalo; on spikes alone, Youngstown, Lebanon, Pa., Richmond, Va.

SHEETS

PRICES F.O.B. UNLESS OTHERWISE NOTED

Hot Rolled

	Base per Lb.
Pittsburgh, Gary, Birmingham, Buffalo, Sparrows Point, Cleveland, Youngstown or Middletown	2.15c.
Detroit, delivered	2.25c.
Philadelphia, delivered	2.32c.
Granite City	2.25c.
On cars dock Pacific ports	2.75c.
Wrought iron, Pittsburgh	4.25c.

Cold Rolled*

Pittsburgh, Gary, Buffalo, Youngstown, Cleveland or Middletown	3.20c.
Detroit, delivered	3.30c.
Granite City	3.30c.
Philadelphia, delivered	3.52c.
On cars dock Pacific ports	3.80c.

* Mill run sheets are 10c. per 100 lb. less than base; and primes only, 25c. above base.

Galvanized Sheets, 24 Gage

Pittsburgh, Gary, Sparrows Point, Buffalo, Middletown, Youngstown or Birmingham	3.50c.
Philadelphia, delv'd	3.67c.
Granite City	3.60c.
On cars dock Pacific ports	4.10c.
Wrought iron, Pittsburgh	6.10c.

Electrical Sheets

(*F.o.b. Pittsburgh*)

	Base per Lb.
Field grade	3.20c.
Armature	3.55c.
Electrical	4.05c.
Special Motor	4.95c.
Special Dynamo	5.65c.
Transformer	6.15c.
Transformer Special	7.15c.
Transformer Extra Special	7.65c.

Silicon Strip in coils—Sheet price plus silicon sheet extra width extras plus 25c. per 100 lb. for coils. Pacific ports add 70c. a 100 lb.

Long Ternes

No. 24 unassorted 8-lb. coating f.o.b. Pittsburgh or Gary	3.95c.
F.o.b. cars dock Pacific ports.	4.65c.

Vitreous Enameling Stock, 20 Gage

Pittsburgh,, Gary Youngstown, Middletown or Cleveland	3.35c.
Detroit, delv'd	3.45c.
Granite City	3.45c.
On cars dock Pacific ports	3.95c.

TIN MILL PRODUCTS

Black Plate

Pittsburgh	3.15c.
Gary	3.15c.
Granite City	3.25c.
On cars dock Pacific ports, boxed	4.10c.

Tin Plate

	Per Base Box
Standard cokes, Pittsburgh and Gary	$5.35
Standard cokes, Granite City	5.45

Special Coated Manufacturing Ternes

	Per Base Box
Pittsburgh	$4.65
Gary	4.65
Granite City	4.75

Roofing Terne Plate

(*F.o.b. Pittsburgh*)

(Per Package, 112 sheets, 20 x 28 in.)	
8-lb. coating I.C.	$12.00
15-lb. coating I.C.	14.00
20-lb. coating I.C.	15.00
25-lb. coating I.C.	16.00
30-lb. coating I.C.	17.25
40-lb. coating I.C.	19.50

HOT ROLLED STRIP

Prices F.o.b. Unless Otherwise Noted

(*Widths up to 12 in.*)

	Base per Lb.
Pittsburgh, Chicago, Gary, Cleveland, Middletown, Youngstown or Birmingham	2.15c.
Detroit, delivered	2.25c.

Cooperage Stock

Pittsburgh & Chicago	2.25c.

COLD ROLLED STRIP*

	Base per Lb.
Pittsburgh, Youngstown or Cleveland	2.95c.
Chicago	3.05c.
Detroit, delivered	3.05c.
Worcester	3.15c.

* Carbon 0.25 and less.

Commodity Cold Rolled Strip

Pittsburgh, Youngstown or Cleveland	3.10c.
Detroit, delivered	3.20c.
Worcester	3.50c.

COLD ROLLED SPRING STEEL

		Pittsburgh and Cleveland	Worcester
Carbon	0.26-0.50%	2.95c.	3.15c.
Carbon	.51- .75	4.30c.	4.50c.
Carbon	.76-1.00	6.15c.	6.35c.
Carbon	1.01 to 1.25	8.35c.	8.55c.

WIRE PRODUCTS

(Carload lots, f.o.b. Pittsburgh, Chicago, Cleveland and Birmingham)

To Manufacturing Trade

	Per Lb.
Bright wire	2.60c.
Galvanized wire	3.15c.
Spring wire	3.20c.

To the Trade

	Base per Keg
Standard wire nails	$2.45
Coated nails	2.45
Cut nails, carloads	3.60

	Base per 100 Lb.
Annealed fence wire	$2.95
Galvanized fence wire	3.35
Polished staples	3.15
Galvanized staples	3.40
Barbed wire, galvanized	3.20
Twisted barbless wire	3.20
Woven wire fence, base column.	67
Single loop bale ties, base col...	56

Note: Birmingham base same on above items, except spring wire.

Add $4 a ton for Mobile, Ala.; $5 for New Orleans; $6 for Lake Charles to above bases, except on galvanized and annealed merchant fence wire, which are $1 a ton additional in each case.

STEEL AND WROUGHT IRON PIPE AND TUBING

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

F.o.b. Pittsburgh only on wrought iron pipe.

Butt Weld

Steel			*Wrought Iron*		
In.	Black	Galv.	In.	Black	Galv.
⅛	56	36	¼ & ⅜	+9	+30
¼ to ⅜	59	43½	½	24	6½
½	63½	54	¾	30	13
¾	66½	58	1 & 1¼	34	19
1 to 3	68½	60½	1½	38	21½
			2	37½	21

Lap Weld

2	61	52½	2	30½	15
2½ & 3	64	55½	2½ to 3½	31½	17½
3½ to 6	66	57½	4	33½	21
7 & 8	65	55½	4½ to 8.	32½	20
9 & 10	64½	55	9 to 12	28½	15
11 & 12	63½	54			

Butt Weld, extra strong, plain ends

⅛	54½	41½	¼ & ⅜	+10	+43
¼ to ⅜	56½	45½	½	25	9
½	61½	53½	¾	31	15
¾	65½	57½	1 to 2	38	22½
1 to 3	67	60			

Lap Weld, extra strong, plain ends

2	59	51½	2	33½	18½
2½ & 3	63	55½	2½ to 4.	39	25½
3½ to 6	65½	59	4½ to 6.	37½	24
7 & 8	65½	56	7 & 8	38½	24½
9 & 10	64½	55	9 to 12	32	20½
11 & 12	63½	54			

On butt-weld and lap-weld steel pipe jobbers are granted a discount of 5%. On less-than-carload shipments prices are determined by adding 25 and 30% and the carload freight rate to the base card.

F.o.b. Gary prices are two points lower discount or $4 a ton higher than Pittsburgh or Lorain on lap weld and one point lower discount, or $2 a ton higher, on all butt weld 3 in. and smaller.

Boiler Tubes

Seamless Steel and Lap Weld Commercial Boiler Tubes and Locomotive Tubes. Minimum Wall.

(Net base prices per 100 ft. f.o.b. Pittsburgh in carload lots)

	Seamless Cold Drawn	Seamless Hot Rolled	Lap Weld Hot Rolled
1 in. o.d....13 B.W.G.	$ 9.01	$ 7.82	....
1¼ in. o.d...13 B.W.G.	10.67	9.26	....
1½ in. o.d...13 B.W.G.	11.79	10.23	9.72
1¾ in. o.d...13 B.W.G.	13.42	11.64	11.06
2 in. o.d....13 B.W.G.	15.03	13.04	12.38
2¼ in. o.d...13 B.W.G.	16.76	14.54	13.79
2¼ in. o.d...12 B.W.G.	18.45	16.01	15.16
2½ in. o.d...12 B.W.G.	20.21	17.54	16.58
2¾ in. o.d...12 B.W.G.	21.42	18.59	17.54
3 in. o.d....12 B.W.G.	22.48	19.50	18.35
3½ in o.d...11 B.W.G.	28.37	24.62	23.15
4 in. o.d....10 B.W.G.	35.20	30.54	28.66
4½ in. o.d...10 B.W.G.	43.04	37.35	35.22
5 in. o.d.... 9 B.W.G.	54.01	46.87	44.25
6 in. o.d.... 7 B.W.G.	82.93	71.96	68.14

Extras for less carload quantities:

40,000 lb. or ft. or over	Base
30,000 lb. or ft. to 39,999 lb. or ft.	5%
20,000 lb. or ft. to 29,999 lb. or ft.	10%
10,000 lb. or ft. to 19,999 lb. or ft.	20%
5,000 lb. or ft. to 9,999 lb. or ft.	30%
2,000 lb. or ft. to 4,999 lb. or ft.	45%
Under 2,000 lb. or ft.	65%

CAST IRON WATER PIPE

Per Net Ton

*6-in. and larger, del'd Chicago.	$51.00
6-in. and larger, del'd New York	49.00
*6-in. and larger, Birmingham.	43.00
6-in. and larger, f.o.b. dock, San Francisco or Los Angeles....	52.00
F.o.b. dock, Seattle.....	52.00
4-in. f.o.b. dock, San Francisco or Los Angeles	55.00
F.o.b. dock, Seattle	52.00

Class "A" and gas pipe, $3 extra 4-in. pipe is $3 a ton above 6-in.

Prices for lots of less than 200 tons. For 200 tons and over, 6-in. and larger is $42, Birmingham, and $50 delivered Chicago and 4-in. pipe, $45, Birmingham, and $54 delivered Chicago.

BOLTS, NUTS, RIVETS, SET SCREWS

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)

Per Cent Off List

Machine and carriage bolts:	
½ in. & 6 in. and smaller.	65, 5 and 5*
Larger and longer up to 1 in.	60, 10 and 5*
1⅛ in. and larger	60, 5 and 5*
Lag bolts	60, 10 and 5
Plow bolts, Nos. 1, 2, 3 and 7	65, 5 and 5
Hot pressed nuts, and c.p.c. and t nuts, square or hex. blank or tapped:	
½ in. and smaller	65 and 5
9/16 in. to 1 in. inclusive.	60, 5 and 5
1⅛ in. and larger	60 and 5

* Less carload lots and less than full container quantity. Less carloads lots in full container quantity, an additional 10 per cent discount; carload lots and full container quantity, still another 5 per cent discount.

Semi-finished hexagon units, U.S.S. and S.A.E.:	
½ in. and smaller	60, 10 and 5
9/16 in. to 1 in. inclusive.	60, 5 and 5
1⅛ in. and larger	60 and 5
Stove bolts in packages, nuts attached	70 and 5
Stove bolts in packages, with nuts separate	70, 10 and 5
Stove bolts in bulk	80 and 5

On stove bolts freight is allowed to destination on 200 lb and over.

Large Rivets
(½-in. and larger)

Base per 100 Lb.

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham $3.40

Small Rivets
(7/16-in. and smaller)

Per Cent Off List

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham .... 65 and 10

Cap and Set Screws

(Freight allowed to destination)

Per Cent Off List

Milled cap screws, 1 in. dia. and smaller	50, 10 and 5
Milled standard set screws, case hardened, 1 in. dia. and smaller	75 and 5
Milled headless set screws, cut thread ¾ in. and smaller	75
Upset hex. head cap screws U.S.S. or S.A.E. thread 1 in. and smaller	70, 10 and 10
Upset set screws, cup and oval points	80 and 5
Milled studs	65

Alloy and Stainless Steel

Alloy Steel Blooms, Billets and Slabs

F.o.b. Pittsburgh, Chicago, Canton, Massillon, Buffalo, Bethlehem. Base price, $56.00 a gross ton.

Alloy Steel Bars

F.o.b. Pittsburgh, Chicago, Buffalo, Bethlehem, Massillon or Canton. Open-hearth grade, base..... 2.80c. Delivered, Detroit ..... 2.90c.

S.A.E. Series Numbers	Alloy Differential per 100 Lb.
200 (½% Nickel)	$0.35
2100 (1½% Nickel)	0.75
2300 (3½ Nickel)	1.55
2500 (5% nickel)	$2.25
3100 Nickel-chromium	0.70
3200 Nickel-chromium	1.85
3300 Nickel-chromium	3.80
3400 Nickel-chromium	3.20
4100 Chromium-molybdenum (0.15 to 0.25 Molybdenum).	0.55
4100 Chromium-molybdenum (0.25 to 0.40 Molybdenum).	0.75
4600 Nickel-molybdenum (0.20 to 0.30 Mo. 1.50 to 2.00 Ni)	1.10
5100 Chrome steel (0.60-0.90 Cr.)	0.35
5100 Chrome steel (0.80-1.10 Cr.)	0.45
5100 Chromium spring steel	0.15
6100 Chromium-vanadium bar	1.20
6100 Chromium-vanadium spring steel	0.85
Chromium-nickel-vanadium	1.50
Carbon-vanadium	0.85

These prices are for hot-rolled steel bars. The differential for most grades in electric furnace steel is 50c. higher. Slabs with a section area of 16 in. and 2½ in. thick or over take the billet base

Alloy Cold-Finished Bars

F.o.b. Pittsburgh, Chicago, Gary Cleveland or Buffalo, 3.40c. base per lb. Delivered Detroit, 3.50c., carlots.

CORROSION & HEAT RESISTANT ALLOYS

(Base prices, cents per lb., f.o.b. Pittsburgh)

Chrome-Nickel

	No. 304	No. 302
Forging billets	21.25c.	20.40c.
Bars	25c.	24c.
Plates	29c.	27c.
Structural shapes	25c.	24c.
Sheets	36c.	34c.
Hot-rolled strip	23.50c.	21.50c.
Cold-rolled strip	30c.	28c.
Drawn wire	25c.	24c.

Straight Chrome

	No. 410	No. 430	No. 442	No. 446
Bars	18.50c.	19c.	22.50c.	27.50c.
Plates	21.50c.	22c.	25.50c.	30.50c.
Sheets	26.50c.	29c.	32.50c.	36.50c.
Hot strip	17c.	17.50c.	23c.	28c.
Cold stp.	22c.	22.50c.	28.50c.	36.50c.

TOOL STEEL

High speed	67c.
High-carbon-chrome	43c.
Oil-hardening	24c.
Special	22c.
Extra	18c.
Regular	14c.

Prices for warehouse distribution to all points on or East of Mississippi River are 2c. a lb. higher. West of Mississippi quotations are 3c. a lb higher.

British and Continental

BRITISH

Per Gross Ton
f.o.b. United Kingdom Ports

Ferromanganese, export	£20 Nominal
Tin plate, per base box	20s. 3d. to 21s. 6d.
Steel bars, open hearth.	£11
Beams, open-hearth	£10 12s. 6d.
Channels, open-hearth	£10 17s. 6d
Angles, open-hearth	£10 12s. 6d
Black sheets, No. 24 gage.	£13
Galvanized sheets, No. 24 gage	£16 15s.

CONTINENTAL

Per Gross Ton, Gold £, f.o.b. Continental Ports

Billets, Thomas	Nominal
Wire rods, No. 5 B.W.G.	£5 10s.
Steel bars, merchant	£5 5s.
Sheet bars	Nominal
Plate ¼ in. and up	£5 17s.
Plate 3/16 in. and 5 mm.	£6 3s.
Sheets ⅛ in.	£5 19s. 6d.
Beams, Thomas	£4 18s.
Angles (Basic)	£4 18s.
Hoops and strip, base	£5 15s.

RAW MATERIALS PRICES

PIG IRON

No. 2 Foundry

F.o.b. Everett, Mass.	$21.75
F.o.b. Bethlehem, Birdsboro and Swedeland, Pa., and Sparrows Point, Md.	21.00
Delivered Brooklyn	23.50
Delivered Newark or Jersey City	22.53
Delivered Philadelphia	21.84
F.o.b. Neville Island, Erie, Pa., Toledo, Chicago and Youngstown*	20.00
F.o.b. Buffalo	20.00
F.o.b. Detroit	20.00
Southern, delivered Cincinnati	20.06
Northern, delivered, Cincinnati	20.44
F.o.b. Duluth	20.50
F.o.b. Provo, Utah	22.00
Delivered, San Francisco, Los Angeles or Seattle	26.95
F.o.b. Birmingham*	16.38

* Delivered prices on southern iron for shipment to northern points are 38c. a ton below delivered prices from nearest northern basing point on iron with phosphorus content of 0.70 per cent and over.

Malleable

Base prices on malleable iron are 50c. a ton above No. 2 foundry quotations at Everett, Eastern Pennsylvania furnaces, Erie and Buffalo. Elsewhere they are the same, except at Birmingham and Provo, which are not malleable iron basing points.

Basic

F.o.b. Everett, Mass.	$21.25
F.o.b. Bethlehem, Birdsboro, Swedeland and Steelton, Pa., and Sparrows Point, Md.	20.50
F.o.b. Buffalo	19.00
F.o.b. Neville Island, Erie, Pa., Toledo, Chicago and Youngstown	19.50
Delivered Philadelphia	21.34
Delivered Canton, Ohio	20.89
Delivered Mansfield, Ohio	21.44
F.o.b. Birmingham	15.00

Bessemer

F.o.b. Buffalo	$21.00
F.o.b. Everett, Mass.	22.75
F.o.b. Bethlehem, Birdsboro and Swedeland, Pa.	22.00
Delivered Newark or Jersey City	23.53
Erie, Pa., and Duluth	21.00
F.o.b. Neville Island, Toledo, Chicago and Youngstown*	20.50
F.o.b. Birmingham	21.00
Delivered Cincinnati	21.11
Delivered Canton, Ohio	21.89
Delivered Mansfield, Ohio	22.44

Low Phosphorus

Basing points: Birdsboro, Pa., Steelton, Pa., and Standish, N. Y.	$25.50

Gray Forge

Valley or Pittsburgh furnace	$19.50

Charcoal

Lake Superior furnace	$25.00
Delivered Chicago	28.34

Canadian Pig Iron

Per Gross Ton

Delivered Toronto

No. 1 fdy., sil. 2.25 to 2.75	$26.50
No. 2 fdy., sil. 1.75 to 2.25	25.50
Malleable	26.00
Basic	25.50

Delivered Montreal

No. 1 fdy., sil. 2.25 to 2.75	$27.50
No. 2 fdy., sil. 1.75 to 2.25	27.00
Malleable	27.50
Basic	27.00

FERROALLOYS

Ferromanganese

F.o.b New York, Philadelphia, Baltimore, Mobile or New Orleans.

Per Gross Ton

Domestic, 80% (carload) $92.50

Spiegeleisen

Per Gross Ton Furnace

Domestic 19 to 21%	$28.00
Domestic, 26 to 28%	33.00

Electric Ferrosilicon

Per Gross Ton Delivered; Lump Size

50% (carload lots, bulk)	$69.50*
50% (ton lots in 50 gal. bbl.)	80.50*
75% (carload lots, bulk)	126.00*
75% (ton lots in 50 gal. bbl.)	139.00*

Bessemer Ferrosilicon

F.o.b. Furnace, Jackson, Ohio

Per Gross Ton

10.00 to 10.50% $29.50

For each additional 0.50% silicon up to 12%, 50c. per ton is added. Above 12% add 75c. per ton.

For each unit of manganese over 2%, $1 per ton additional. Phosphorus 0.75% or over, $1 per ton additional.

Base prices at Buffalo are $1.25 a ton higher than at Jackson.

Silvery Iron

Per Gross Ton

F.o.b. Jackson, Ohio, 5.00 to 5.50% $23.50

For each additional 0.5% silicon up to 12%, 50c. a ton is added. Above 12% add 75c. a ton.

The lower all-rail delivered price from Jackson or Buffalo is quoted with freight allowed. Base prices at Buffalo are $1.25 a ton higher than at Jackson.

Manganese, each unit over 2%, $1 a ton additional. Phosphorus 0.75% or over, $1 a ton additional.

Ferrochrome

Per lb. Contained Cr., Delivered Carlots, Lump Size, on Contract

4 to 6% carbon	10.50c.*
2% carbon	16.50c.*
1% carbon	17.50c.*
0.10% carbon	19.50c.*
0.06% carbon	20.00c.*

Silico-manganese

Per Gross Ton, Delivered, Lump Size, Bulk, on Contract

3% carbon	$92.75
2.50% carbon	97.75
2% carbon	102.75
1% carbon	112.75

Other Ferroalloys

Ferrotungsten, per lb. contained W del., carloads, nominally	$2.00
Ferrotungsten, lots of 500 lbs. nominally	2.05
Ferrotungsten, smaller lots, nominally	2.10
Ferrovanadium, contract, per lb. contained V., delivered	$2.70 to $2.90†
Ferrocolumbium, per lb. contained columbium, f.o.b. Niagara Falls, N. Y., tons lots.	$2.25†
Ferrocarbontitanium, 15 to 18% Ti, 7 to 8% C, f.o.b. furnace carload and contract per net ton	$142.50
Ferrocarbontitanium, 17 to 20% Ti, 3 to 5% C, f.o.b. furnace, carload and contract, per net ton	$157.50
Ferrophosphorus, electric or blast furnace material, in carloads, f.o.b. Anniston, Ala., for 18%, with $3 unitage, freight equalized with Rockdale, Tenn., per gross ton	$58.50
Ferrophosphorus, electrolytic, 23-26% in car lots, f.o.b. Monsanto (Siglo), Tenn., 24%, per gross ton, $3 unitage, freight equalized with Nashville	$75.00
Ferromolybdenum, per lb. Mo. f.o.b. furnace	95c.
Calcium molybdate, per lb. Mo. f.o.b. furnace	80c.

*Spot prices are $5 per ton higher †Spot prices are 10c. per lb. of contained element higher.

ORES

Lake Superior Ores

Delivered Lower Lake Ports

Per Gross Ton

Old range, Bessemer, 51.50%	$5.25
Old range, non-Bessemer, 51.50%	5.10
Mesabi, Bessemer, 51.50%	5.10
Mesabi, non-Bessemer, 51.50%	4.95
High phosphorus, 51.50%	4.85

Foreign Ore

C.i.f. Philadelphia or Baltimore

Per Unit

Iron, low phos., copper free, 55 to 58% dry, Algeria, nominal	17.00c.
Iron, low phos., Swedish, average, 68½% iron. Nominally 17 to 18c.	
Iron, basic or foundry, Swedish, aver. 65% iron. Nominally	15c.
Iron, basic or foundry, Russian, aver. 65% iron	Nominal
Man., Caucasian, washed 52%	40c.
Man., African, Indian, 44-48%	35c.
Man., African, Indian, 49-51%	Nominally 38c.
Man., Brazilian, 46 to 48½%	Nominally 38c.

Per Short Ton Unit

Tungsten, Chinese, Wolframite, duty paid, delivered	$18.50
Tungsten, domestic, scheelite delivered	$19.00 to 20.00
Chrome ore (lump) c.i.f. Atlantic Seaboard, per gross ton: South African (low grade)	15.00
Rhodesian, 45%	21.00
Rhodesian, 48%	24.50
Turkish, 48-49%	24.00 to 25.00
Turkish, 45-46%	22.50 to 23.00
Turkish, 44%	18.00 to 18.50
Chrome concentrates (Turkish) c.i.f. Atlantic Seaboard, per gross ton: 50%	24.50 to 25.50
48-49%	24.50 to 25.00

FLUORSPAR

Per Net Ton

Domestic washed gravel, 85-5, f.o.b. Kentucky and Illinois mines, all rail	$18.00
Domestic, f.o.b. Ohio River landing barges	18.00
No. 2 lump, 85-5, f.o.b. Kentucky and Ill. mines.	$18.00 to 19.00
Foreign, 85% calcium, fluoride, not over 5% silicon, c.i.f. Atlantic ports, duty paid	24.50
Domestic No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silicon, f.o.b. Illinois and Kentucky mines	31.50

FUEL OIL

Per Gal.

No. 2 or diesel, f.o.b. Bayonne	4.00c.
No. 6, f.o.b. Bayonne	2.26c.
Del'd Chicago, No. 5 Bur. Stds.	3.25c.
Del'd Chicago, No. 6 Bur. Stds.	2.75c.
Del'd Cleve'd, No. 3 distillate	5.50c.
Del'd Cleve'd, No. 4 industrial	5.00c.
Del'd Cleve'd, No. 5 industrial	3.25c.
Del'd Cleve'd, No. 6 industrial	3.00c.

COKE

Per Net Ton

Furnace, f.o.b. Connellsville, Prompt	$3.75
Foundry, f.o.b. Connellsville, Prompt	$4.75 to 5.50
Foundry, by-product, Chicago ovens	10.25
Foundry, by-product, del'd New England	12.50
Foundry, by-product, del'd Newark or Jersey City	10.88 to 11.40
Foundry, by-product, Philadelphia	10.95
Foundry, by-product, delivered Cleveland	10.30
Foundry, by-product, delivered Cincinnati	9.75
Foundry, Birmingham	7.50
Foundry, by-product, del'd St. Louis industrial district	10.75 to 11.00
Foundry, from Birmingham, f.o.b. cars dock, Pacific ports	14.75

THIS WEEK'S MACHINE . . . TOOL ACTIVITIES . . .

. . . Machine tool builders report increase in foreign orders . . . Domestic business light, but inquiries have a better tone.

Inquiries Being Revived For Fall Buying

CLEVELAND — Propositions dormant through June and July are being revived in Ohio by numerous companies, large and small, in preparation for the expected uplift in the fall. While no large lists have come out, the diversification of inquiry is heartening. Downstate, single machines are being lined up by metal working and steel mill equipment companies and concerns sharing in the freight car business recently placed by Southern Railway.

A few dealers are able to promise deliveries off the floor on certain strictly standard items like millers, but backlogs of some producers range from three to six months or longer. In view of this, fears are held in some quarters that a jam would develop quickly in deliveries if buyers all came into the market at once.

Most of the recent price corrections on machine tools have been on attachments. The used machinery market here has been enlivened recently by Japanese inquiry.

Tool Builders Report Better Foreign Demand

CINCINNATI — The local machinery market, still under the strong foreign impetus, moved to a slightly higher demand level the past week. Outstanding business is among lathe manufacturers. Rumors of large lathe orders are being tossed about the market, but when traced, no foundation is found except the general report that business is better than last week, and a few multiple unit orders have been closed. Milling machine manufacturers disclose a better demand for their product, but the order pressure is chiefly from foreign sources. Drilling tools are still without reportable demand, although inquiry continues to be fairly good.

Inquiries Expected Soon For 1940 Auto Production

DETROIT—After the middle of August it is expected in Detroit that there will be beginning of activity in machine tools. This is expected to take the form of numerous inquiries for equipment for 1940 automobile models. Sentiment is quite generally on the optimistic side as regards next year's business and it is believed that the inactivity at present is largely attributable to vacation periods. The only business placed in recent weeks has been for single units of small equipment.

Feeling is Good Despite Summer Slump

CHICAGO—Active interest in the inquiries reported a week ago has not been sufficient to result in many orders, and the usual summer slump is in full swing. Isolated cases are receiving some business, and generally speaking a good feeling is apparent. Most offices are hopeful that August will bring forth some orders, but few live prospects are in sight. It is a commonly held belief, however, that conditions will improve greatly late next month and early in September.

July Sales Substantially Better in the East

NEW YORK—Two of the leading dealers report July sales substantially better than June, although the sources of new orders were limited—aircraft engine manufacturers, several of the Eastern arsenals and a diesel engine plant that in the last week placed orders for about $100,000 of heavy duty machine tools. Others report business spotty and at a low level. The tone of inquiry has improved considerably, however, and much depends upon the present trend in sentiment as to what the immediate future holds in store. The belief is expressed by many that should all active prospects take action within the month, the machine tool builders would be swamped and deliveries would soon go back to four to six months from date of order. Some standard machines can now be had in two weeks, but stocks at the plants are low.

Chapin Finds Machine Tool Outlook Improved

CLEVELAND.—Fred H. Chapin, president, National Acme Co., Cleveland, upon his return from Europe reports orders and inquiries active for machine tools in France, England, Italy and Hungary.

High tariffs on certain sizes of machine tools placed by foreign countries in retaliation for the high duties imposed on imports by the United States, constitute a potential danger for American machine tool exporters, said Mr. Chapin. He reports the domestic outlook improved during his absence.

Machinery Exports Up 16% During June

INDUSTRIAL machinery exports from the United States in June totaled $23,203,415, or 16 per cent above June of last year, while shipments abroad the first six months of 1938 were $142,216,348 against $111,176,031 in the like period of 1937, according to the machinery division of the Department of Commerce.

Shipments by groups were as follows, the first-half-year figure for 1938 preceding that for 1937 in each case: power-driven metal-working, $49,051,845 against $27,769,774; other metal-working, $2,506,088 against $2,168,789; power-generating, except electric and automotive, $10,671,255 against $6,912,159; construction and conveying, $12,887,212 against $10,131,365; mining, well, and pumping, $33,583,500 against $28,606,379; textile, sewing, and shoe, $8,390,304 against $10,283,400.

Greatly increased shipments to Russia and Japan have been a major factor in the continued improvement in the machine tool exports.

. . . BOSTON . . .

. . . Week's pig iron sales slightly over 2000 tons.

BOSTON, Aug. 2.—Business in pig iron picked up a little the past week, sales aggregating slightly more than 2000 tons. The bulk of business was placed with Connecticut foundries. Sales included quite a few truck loads on rush orders from foundries suddenly confronted with orders for castings and no iron in stock. In addition to pig iron, foundries bought odds and ends necessary in melting, so that brokers had a fairly good week, all things considered. Foundries are still urgently pressed for lower casting quotations, and until this situation is cleared the likelihood of an increase in the New England melt is rather slim.

Although production of steel in leading producing centers is on the increase, the three New England mills are no busier than on July 1, last. The Bridgeport, Conn. and Phillipsdale, R. I. mills are operating but one furnace. The American Steel & Wire Co., Worcester, Mass., is doing a little better than the other two mills.

PLANT EXPANSION AND EQUIPMENT BUYING

NORTH ATLANTIC

Seagram Distillers Corp., 405 Lexington Avenue, New York, is considering new branch plant at San Francisco, for rectifying, mechanical-bottling and allied production, with storage and distributing facilities. Cost about $250,000 with machinery.

Brewster Aeronautical Corp., 27-01 Bridge Plaza North, Long Island City, manufacturer of aircraft equipment, has organized a new division, Brewster Aircraft Parts, for production of airplane parts. P. M. Stephenson, production manager for parent company, will be vice-president.

R. Steel & Sons, 41-25 Vernon Boulevard, Long Island City, manufacturers of machine specialties and parts, forgings, etc., have filed plans for one-story machine and forge shop at Bridge Plaza South and Ninth Street. Cost close to $35,000 with equipment.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Aug. 9 for heat and flame-resistant electric cable (Schedule 4075) for Brooklyn Navy Yard; 24 pinions and 12 racks (Schedule 4074); until Aug. 12, copper-nickel alloy tubing (Schedule 4097), about 60,000 lb. of copper-nickel alloy plates (Schedule 4093); until Aug. 16, steel forgings (Schedule 4113) for Brooklyn and Philadelphia yards; until Aug. 12, for 91,000 lin. ft. of electric insulated cable (Schedule 4116) for Brooklyn and Mare Island yards; until Aug. 19 for 1050 gross of self-tapping sheet metal screws (Schedule 4122) for Brooklyn and Sewall's Point yards.

International Nickel Co., 67 Wall Street, New York, will expend close to $200,000 for new foundry at branch plant at Bayonne, N. J., for experimental and other service, in conjunction with other buildings at plant. Superstructure is being placed under way. Epple & Kahrs, 17 Washington Street, Newark, N. J., are architects and engineers.

Department of Docks, City of New York, Pier A, North River, New York, plans three large steel hangars, with repair and reconditioning facilities, and one steel seaplane hangar, shops and other structures, including terminal and administration buildings at municipal airport, North Beach, Queens, on which grading and other site improvements are now under way. Financing has been arranged through Federal aid.

Commanding Officer, Watervliet Arsenal, Watervliet, N. Y., asks bids until Aug. 15 for one lot of thread gages (Circular 5).

Signal Corps Procurement District, Army Base, Fifty-eighth Street and First Avenue, Brooklyn, asks bids until Aug. 19 for 200 to 600 switchboxes, and 200 to 600 lamp mountings (Circular 14).

Jenter Displays Co., Fifteenth Street and Bloomfield Avenue, Hoboken, N. J., advertising displays and exhibits, has acquired about 3½ acres on Broad Street, Ridgefield, N. J., for new one and two-story plant, about 28,000 sq. ft. of floor space, for which superstructure will begin this month. Cost over $65,000 with equipment. Company will remove plants from Hoboken and Mount Vernon, N. Y., to new location, and increase capacity.

Commanding Officer, Ordnance Department, Picatinny Arsenal, near Dover, N. J., asks bids until Aug. 9 for 4500 fuze hole plugs (Circular 43); until Aug. 8, mechanical dippers (Circular 1119); until Aug. 18, target practice projectiles for gun and mortar, respectively (Circular 33).

Thomas A. Edison, Inc., West Orange, N. J., has let general contract to Fatzler Co., 653 South Fifteenth Street, Newark, N. J., for one and two-story and basement addition, 170 x 265 ft., to branch plant at Silver Lake, Belleville, N. J., used for storage battery division, with one-story office building adjoining. Cost close to $200,000 with equipment. W. O. Bartlett, Bloomfield Avenue and Broad Street, Bloomfield, N. J., is architect.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Aug. 16 for steel flanges (Schedule 4108), 300 aircraft oxygen regulators (Schedule 4112) for Philadelphia Navy Yard.

Lehigh Portland Cement Co., Allentown, Pa., will modernize branch mill at Alsen, N. Y., and erect new buildings, including storage and distributing facilities. Cost over $100,000 with machinery. Work will be carried out by company forces.

Commanding Officer, Ordnance Department, Frankford Arsenal, Philadelphia, asks bids until Aug. 8 for 150,700 grommets (Circular 31), 101,000 fuze hole plugs made from forged steel or cast iron (Circular 30); until Aug. 9, one to three bullet jacket trim machines, caliber 0.30 (Circular 1255), one identifying machine, caliber 0.30 tracer bullet (Circular 1254), one primer inverting machine, caliber 0.30 (Circular 1257), one to three automatic screw bullet groove-turning machines, caliber 0.30 (Circular 1258).

BUFFALO DISTRICT

National Gypsum Co., 190 Delaware Avenue, Buffalo, has let general contract to George A. Fuller Co., 597 Madison Avenue, New York, for new mill at Port Wentworth, Savannah, Ga. New plant will be equipped for wall board production, with power house, machine shop and other mechanical divisions. A dock will be built on waterfront, with storage and distributing facilities. Cost close to $1,000,000 with machinery.

Eastman Kodak Co., Kodak Park, Rochester, N. Y., has let general contract to Ridge Construction Corp., Kodak Park, for one-story addition, for a distillation unit. Cost close to $60,000 with equipment.

WASHINGTON DIST.

United States Engineer Office, Navy Building, Washington, asks bids until Aug. 10 for one horizontal, motor-driven centrifugal pumping unit, capacity 20,000,000 gal. per day, with valve equipment and accessories (Circular 6).

City Council, Galax, Va., plans municipal electric light and power plant, using diesel engine-generator units and accessory equipment. Cost about $287,000 with distributing lines, of which $129,000 will be secured through Federal grant.

Bureau of Yards and Docks, Navy Department, Washington, asks bids until Aug. 10 for two 750-hp. watertube boilers, with mechanical stokers, steam turbine-driven forced and induced-draft fans, steel stack, air and flue gas ducts and accessory equipment, for boiler plant at Naval Torpedo Station, Newport, R. I. (Specifications 8828); also bids (no closing date stated) for sectional steel gate for shipbuilding ways, Norfolk Navy Yard, Portsmouth, Va. (Specifications 8860).

City Council, Norfolk, Va., Thomas P. Thompson, city manager, will ask bids soon on general contract for steel hangar at municipal airport, with lean-to extensions on each side for shop and mechanical service. Cost over $100,000 with equipment. Financing is being arranged through Federal aid.

General Purchasing Officer, Panama Canal, Washington, asks bids until Aug. 11 for malleable iron pipe fittings, galvanized pipe flanges, galvanized unions, black iron flexible ball joints, galvanized malleable iron railing fittings, angle valves, check valves, gate valves, globe valves, 25,000 lin. ft. of copper cord, hard-drawn copper wire and other equipment (Schedule 3373).

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Aug. 9 for motor-generator sets, controllers, spare parts and accessories (Schedule 3955), pressure-regulating valves and spare parts (Schedule 4028), seamless copper tubing (Schedule 4025) for Eastern and Western Navy yards; until Aug. 12, one motor-driven universal tool cutter and grinder (Schedule 4087) for Norfolk yard, Portsmouth, Va.; eight motor-driven precision milling machines with tools and equipment (Schedule 4103) for Alexandria, Va., yard.

NEW ENGLAND

Bureau of Yards and Docks, Navy Department, Washington, will ask bids soon on general contract for two-story and basement training school, 77 x 150 ft., and barracks at submarine base, New London, Conn., for which an appropriation of $887,000 has been authorized for buildings and equipment. Schofield & Deimel, New London, are architects for school unit.

Boston Elevated Railway Co., 31 St. James Avenue, Boston, plans one-story motor bus service, repair and garage building, 75 x 200 ft., at Roxbury, with gasoline and oil storage and handling department. Cost close to $85,000 with equipment. Company has let general contract to Bond Brothers, Everett, Mass., for two-story emergency service and garage building for motor buses at car yards in Everett. Cost about $45,000 with equipment.

W. W. Crocker Co., 414 Main Street, Cambridge, Mass., manufacturer of sheet metal products, has leased a floor in building at 491-93 Main Street for plant.

Board of Education, New London, Conn., will ask bids soon on general contract for three-story addition to Chapman Technical High School, Waller Court. First floor will be used for machine shops. Cost close to $150,000 with equipment. Payne & Keefe, New London, are architects.

SOUTH ATLANTIC

Lykes Brothers, Inc., Palm River, Tampa, Fla., H. T. Lykes, vice-president, meat packer, has let general contract to G. A. Miller, Inc., 312 Twiggs Street, for one-story and basement addition, 150 x 200 ft. Cost close to $100,000 with equipment. H. Peter Henschien, 59 East Van Buren Street, Chicago, is architect and engineer.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Aug. 12 for spare parts for airplanes (Schedule 900-1956) for Pensacola, Fla., naval air station; until Aug. 19, 12 pneumatic drills for Charleston, S. C., yard, and 50 pneumatic scaling hammers for Eastern or Western yards (Schedule 4085).

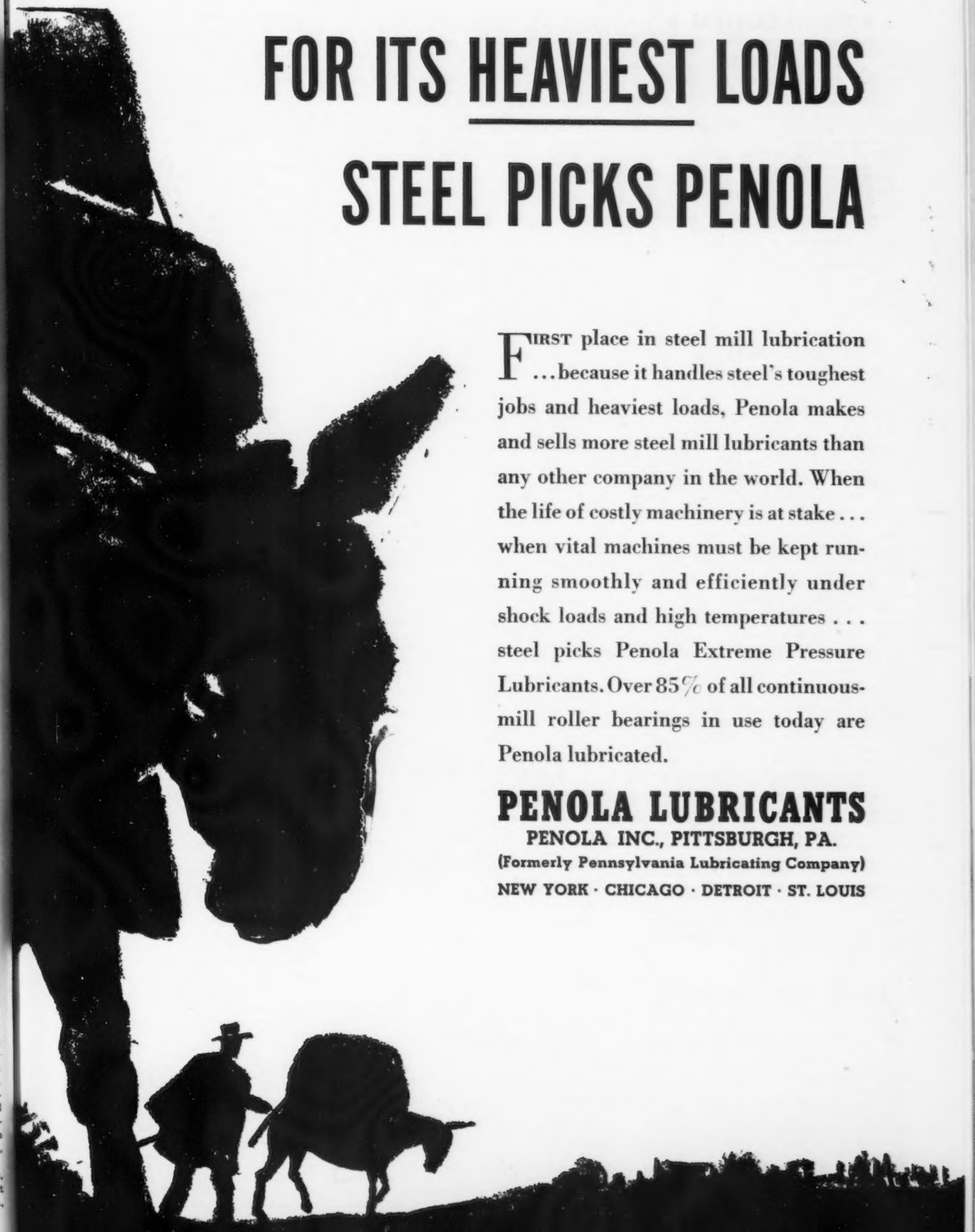
Carolina Paper Board Co., Charlotte, N. C., has let general contract to E. L. Bass & Brothers Construction Co., 708 Bainbridge Street, Richmond, Va., for new one-story mill, 80 x 220 ft. Cost over $65,000 with equipment.

WESTERN PA. DIST.

West Penn Power Co., West Penn Building, Pittsburgh, is arranging fund of $4,500,000 for expansion and improvements in power plants and system, including new transmission and distributing lines, power substations and other structures. Company has authorized sale of bonds totaling $17,000,000, appropriation noted to be secured from fund.

Board of Public Education, Administration Building, 341 Bellefield Avenue, Pittsburgh, has asked bids on general contract for five-story William M. Davidson Vocational School at Sarah and Twenty-fifth Streets. Cost $1,128,200. Financing has been arranged through Federal aid. M. M. Steen, first noted address, is architect for board.

Koppers Co., Koppers Building, Pittsburgh, plans new headhouse and other buildings at coal-mining properties at Kopperston, W. Va., to cost over $80,000 with equipment.



FOR ITS HEAVIEST LOADS

STEEL PICKS PENOLA

FIRST place in steel mill lubrication ... because it handles steel's toughest jobs and heaviest loads, Penola makes and sells more steel mill lubricants than any other company in the world. When the life of costly machinery is at stake ... when vital machines must be kept running smoothly and efficiently under shock loads and high temperatures ... steel picks Penola Extreme Pressure Lubricants. Over 85% of all continuous-mill roller bearings in use today are Penola lubricated.

PENOLA LUBRICANTS

PENOLA INC., PITTSBURGH, PA.

(Formerly Pennsylvania Lubricating Company)

NEW YORK · CHICAGO · DETROIT · ST. LOUIS

LUBRICANTS FOR THE STEEL INDUSTRY SINCE 1885.

SOUTH CENTRAL

United States Engineer Office, First District, New Orleans, asks bids until Aug. 12 for one 6000-lb. steam hoist, with accessories (Circular 23), one roller bearing heel-block, two single sheave cargo blocks, with bronze-bushed graphite bearings (Circular 22).

Rust Brothers, 2369 Florida Street, Memphis, Tenn., plan one-story plant for production of a mechanical cotton picker, recently invented, including parts manufacture and assembling. Cost close to $40,000 with equipment.

Director of Puchases, Tennessee Valley Authority, Knoxville, Tenn., asks bids until Aug. 10 for one 80,000-hp. single Francis runner type hydraulic turbine, with riveted plate steel scroll case, and one governing system, for installation at Hiwassee dam hydroelectric generating plant.

United States Engineer Office, Vicksburg, Miss., asks bids until Aug. 9 for 5000 lb. of heavy flux-coated welding electrodes (Circular 19).

SOUTHWEST

Board of Public Works, St. Joseph, Mo., plans one and two-story storage and distributing building on new wharf at old Rosecrans Field, with crane and other mechanical-handling equipment. Fund of $225,000 is being arranged through Federal aid for entire project. R. V. Land is city engineer; Horner & Wyatt, Board of Trade Building, Kansas City, Mo., are consulting engineers.

American Refrigerator Transit Co., 210 North Thirteenth Street, St. Louis, has let general contract to Woermann Construction Co., 3800 West Pine Boulevard, for new car repair shops, consisting of two main one-story units, 90 x 429 ft., and 60 x 185 ft., respectively, and smaller buildings. Cost over $150,000 with equipment. A. L. Becker, architect for Missouri-Pacific Railroad Co., Missouri-Pacific Building, is architect.

City Council, Okmulgee, Okla., plans extensions and improvements in municipal electric power plant, including additional equipment; also extensions and replacements in distributing system. Cost about $900,000, of which $406,800 will be represented by a Federal grant. W. R. Holway, 302 East Eighteenth Street, Tulsa, Okla., is consulting engineer.

Misers Chest Mining & Milling Co., Lordsburg, N. M., plans new mill, including equipment; also installation of mining machinery and other mechanical equipment. Financing in amount of $100,000 is being arranged, a considerable portion of proceeds to be used for purpose noted.

Common Council, Jasper, Tex., plans new municipal electric power plant and distributing system. Cost about $175,000. Financing is being arranged through Federal aid.

Folger Coffee Co., 1201 Commerce Street, Houston, Tex., has plans for new one and three-story coffee-roasting and blending plant on Navigation Boulevard, 60 x 140 ft., with bagging, packing, storage and distributing departments. Superstructure will begin this month. Cost about $150,000 with equipment. Robert J. Cummins, Bankers' Mortgage Building, is engineer.

OHIO AND INDIANA

Public Works Branch, Procurement Division, Treasury Department, Washington, will take bids soon on general contract for new multistory motor truck service, repair and garage building at Cleveland for Post Office Department. Appropriation of $350,000 has been authorized.

Village Council, Fairport, Ohio, has arranged Federal grant and loan for $155,000 for new municipal electric power plant, installation to include three 200-kw. diesel engine-generator units and auxiliary equipment. A part of fund will be used for a distributing system. Jay M. Crabbes, 89 North Park Place, Painesville, Ohio, is village engineer. Robert R. Jones, Akron, Ohio, is consulting engineer.

Park Drop Forge Co., East Seventy-ninth Street and Gordon Parkway, Cleveland, manufacturer of crankshafts and other drop forgings, has let general contract to Paugh & Brown, Inc., 6007 Euclid Avenue, for one-story addition, 24 x 260 ft., for storage and distribution, and plant improvements. Cost close to $45,000 with equipment. Carl Carlson is company architect, first noted address.

Contracting Officer, Materiel Division, Air Corps, Wright Field, Dayton, Ohio, asks bids until Aug. 10 for one motor-driven grinder, one power hammer and two turret punches (Circular 31).

Common Council, Rushville, Ind., plans extensions and improvements in municipal electric power plant, including additional equipment. Cost about $180,000. Financing will be arranged through Federal aid.

Farmers' Co-operative Elevator Co., Southport, Ind., plans rebuilding grain elevator recently destroyed by fire. Loss about $50,000 with elevating, conveying, screening and other mechanical equipment. Harry Richards is general manager.

Moutoux Auto & Machine Co., 207 North Wabash Avenue, Evansville, Ind., has let general contract to Tri-State Contracting Co., 1525 Shanklin Avenue, for new two-story shop. Cost close to $35,000 with equipment.

MICHIGAN DISTRICT

Ford Motor Co., Dearborn, Mich., plans one-story addition to paper mill division at River Rouge plant, 60 x 260 ft., for production of new type of resin board for use as upholstery backing in car body interiors. Present plant capacity will be increased about 40 per cent. Cost close to $300,000 with machinery.

Lufkin Rule Co., Saginaw, Mich., has let general contract to Spence Brothers, Saginaw, for one-story addition. Cost close to $40,000 with equipment. Fred Beckbissinger, Saginaw, is architect.

Board of Education, Iron Mountain, Mich., has let general contract to W. C. Smith, Inc., Builders' Exchange Building, Duluth, Minn., for new power house at junior high school. Cost about $40,000 with equipment. F. E. Parmelee, Iron Mountain, is architect.

Rotary Electric Steel Co., Eight-Mile and Mound Roads, Detroit, has asked bids on general contract for one-story addition, 140 x 160 ft. Cost over $125,000 with equipment. Shreve, Anderson & Walker, Marquette Building, are architects.

MIDDLE WEST

American Manganese Steel Co., 389 East Fourteenth Street, Chicago Heights, will take bids soon on general contract for two-story and basement addition, 100 x 115 ft., for general operations and administration. Cost about $100,000 with equipment.

Nanson Commission Co., Merchants Exchange Building, St. Louis, plans rebuilding part of grain elevator at Chester, Ill., recently destroyed by fire. Loss about $70,000 with elevating, conveying, screening and other mechanical equipment.

City Council, Duluth, Minn., plans new one-story municipal central works service, repair and garage building at Thirty-fourth Avenue South and Second Street, with shop facilities, for city-owned motor trucks and cars. Cost about $160,000 with equipment. Financing is being arranged through Federal aid. Thomas F. McGilvray is city engineer.

Bureau of Reclamation, Denver, asks bids until Aug. 11 for electrical conductor cable and accessory equipment for power transmission lines of Colorado-Big Thompson project, Colo. (Specifications 1103-D).

American Crystal Sugar Co., Boston Building, Denver, is considering beet sugar mill in northwestern part of Texas, near Muleshoe, Bailey County, where experiments in growing sugar beets have been under way. Plant will include power house, pumping station, machine shop and other mechanical departments. Cost over $1,000,000 with machinery.

Board of Trustees, Iowa State College, Ames, Iowa, H. C. Gregg, business manager, plans expansion and improvements in steam power plant, including additional equipment. Steam pipe line system also will be extended. Cost about $200,000. Financing is being arranged through Federal aid.

Board of Education, Two Harbors, Minn., plans manual training department in new two-story and basement high school. Cost about $330,000. Financing is being arranged through bond issue and Federal aid. Erickson & Co., Alworth Building, Duluth, Minn., are architects.

Keller Tool & Machine Works, 601 Jefferson Street, Eau Claire, Wis., has placed general contract with Walker Bros., Inc., 6 Platt Street, for machine shop addition.

Special Machines Corp., Burlington, Wis., has been organized by Walter Dinkel, Wallace Newbury and J. F. Hanson of that city to manufacture equipment for paper industry. Manufacturing plans have not been announced as yet.

Wisconsin State Highway Commission, Madison, Wis., has accepted bid of George Nelson & Co., local contractors, for new $175,000 highway garage, laboratory and sign and signal fabricating shop, 65 x 148 ft., two stories and basement on campus of University of Wisconsin. E. L. Roettiger is chief engineer.

PACIFIC COAST

Federated Metals Division, American Smelting & Refining Co., 4010 East Twenty-sixth Street, Los Angeles, has plans for one-story addition, 90 x 120 ft. Cost over $85,000 with equipment. Austin Co. of California, Inc., 777 East Washington Street, is engineer and contractor.

Oakdale Elementary School District, Oakdale, Stanislaus County, Cal., J. J. Berry, superintendent, plans one-story vocational shop at new school unit near Laurel Avenue. Cost about $280,000. Financing has been arranged through Federal aid. Frank V. Mayo and Eric W. Johnson, 931 North El Dorado Street, Stockton, Cal., are architects.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until Aug. 12 for parts for airplanes (Schedule 900-1964) for San Diego naval air station; 39,550 lin. ft. of plow steel wire rope, galvanized and ungalvanized (Schedule 4065); until Aug. 16, six pump pressure regulating governors and spare parts (Schedule 4073); until Aug. 23, one 50-ton motor-driven power press and spare parts (Schedule 4105) for Mare Island Navy Yard; two 15-kva. motor-generators, two controllers and spare parts (Schedule 4107) for Puget Sound yard.

Bureau of Yards and Docks, Navy Department, Washington, will take bids soon for new graving dock at Puget Sound yard, Bremerton, Wash., for which an appropriation of $4,500,000 has been authorized, including operating equipment and facilities.

Board of Directors of State Institutions, Phoenix, Ariz., plans new State industrial school for boys in Fort Grant district, Phoenix, including shops, power house and other mechanical units, with facilities for 200 boys. Cost about $480,000. Financing is being arranged through Federal aid. Orville A. Bell, Heard Building, Phoenix, is architect.

Bureau of Reclamation, Denver, asks bids until Aug. 10 for three trash cars for handling debris removed by traveling trashrack rakes from trashracks at headworks of All-American and Gila Valley Canals, Imperial Dam, All-American canal system, Boulder Canyon project (Specifications 1102-D).

FOREIGN

Petroleos Mexicanos, Ltd., Mexico, D.F., official Federal oil company, plans addition to oil refinery at Atzcapotzalco, Mexico, formerly owned by Mexican Eagle Oil Co., Ltd., including cracking machinery and auxiliary equipment. Cost about $700,000 with machinery.

Canner's Machinery Co., Ltd., Simcoe, Ont., manufacturer of canning machinery and parts, has plans for one-story machine shop 50 x 100 ft. Cost about $50,000 with equipment.